Indiana Trauma Registry

Statewide Quarter 1 Data Report
January 1, 2014 to March 31, 2014
6,824 Incidents

88 Total Hospitals Reporting

Trauma Centers:	9 facilities	47.03% of data
(Non-Trauma) Hospitals:	79 facilities	52.97% of data

For Quarter 1 2014, which spanned from January 1, 2014 to March 31, 2013, there were 6,824 Incidents reported to the Indiana Trauma Registry at the Indiana State Department of Health. There were 87 hospitals that reported data, of which 9 were trauma centers and 79 were non-trauma centers. There were 30 hospitals that either started to report again or were new to report during this quarter compared to the previous quarter, while 3 hospital dropped off from reporting this quarter from the previous quarter. A map of the state with the reporting hospitals can be found on page 30. This report spans data for Quarter 1, 2014, and IU Health - Arnett Hospital, IU - Health Ball Memorial, St. Elizabeth East Hospital, and St. Vincent Anderson Hospital were the four hospitals with "in the process" status during the quarter. Trauma centers represented 47.03% of the data. There were 2,316 incidents reported for January, 2,259 reported for February, and 2,249 incidents reported for March.

The content of this report has changed due to suggestions and additions requested by the Indiana State Trauma Care Committee at the May, 2014 meeting. Explanations of the changes requested and adapted from the ISTCC meeting can be found on page 31.

Some general reminders include that the blue columns represent an Indiana average, red columns represent trauma centers, and green columns represent non-trauma centers. If a single percent is listed above a group of bars, the percent listed represents the average for Indiana. If a number is listed above a group of bars, it represents the count for Indiana.

The E-codes used in this report follow the ICD-9 CDC matrix of external cause of injury.

Definitions:
Direct Admit: Patient is admitted directly to the hospital and does not spend time in Emergency Department. The ED Length of Stay should reflect a direct admittance.
External Cause of Injury: ICD-9-CM codes that are used to describe the mechanism or external factor that caused the injury event.
Trauma Type: The classification of the force applied to the body. Trauma type categories include blunt, penetrating, thermal, and other trauma.
Injury Severity Score: An anatomical scoring system defined as the sum of the three highest squared maximum AIS values to account for multiple injuries in the six body regions.

Acronyms:

CAHs: Critical Access Hospital
E-code: External Cause of Injury
ED: Emergency Department
ICU: Intensive Care Unit
ISS: Injury Severity Score

LOS: Length of Stay
MVC: Motor Vehicle Collision
OR: Operating Room
Ps: Probability of Survival

Formulas:

$$ISS = (AIS)^2 + (AIS)^2 + (AIS)^2$$

Total GCS = Verbal GCS + Motor GCS + Eye GCS

$Ps = 1/(1+e^{-b})$ where

$b = b_o + b1(RTS) + b2(ISS) + b3(Age\ Index)$

Indiana State Department of Health
Trauma and Injury Prevention

Indiana Trauma Registry
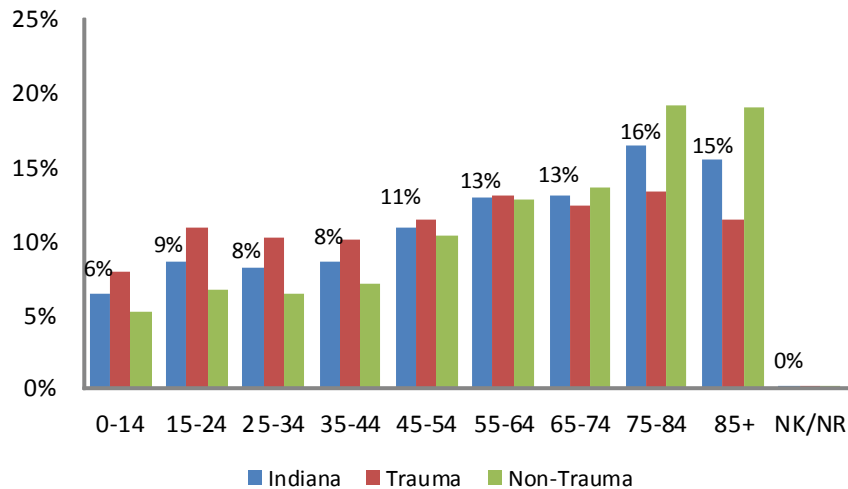
Statewide Quarter 1 Data Report
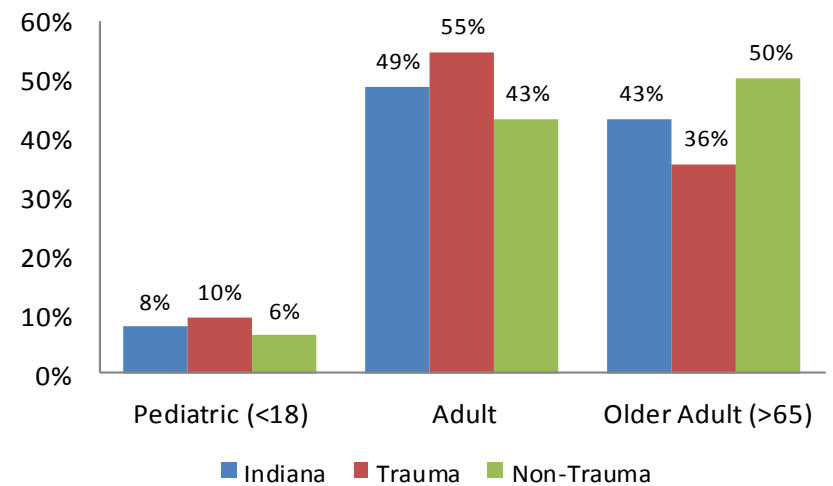**January 1, 2014 to March 31, 2014**
6,824 Incidents

Patient Age (Years)

Indiana, Trauma, Non-Trauma

	0-14	15-24	25-34	35-44	45-54	55-64	65-74	75-84	85+	NK/NR
Indiana	6%	9%	8%	8%	11%	13%	13%	16%	15%	0%

Patient Age Groupings

Indiana, Trauma, Non-Trauma

	Pediatric (<18)	Adult	Older Adult (>65)
Indiana	8%	49%	43%
Trauma	10%	55%	36%
Non-Trauma	6%	43%	50%

Patient Gender

Indiana, Trauma, Non-Trauma

	Male	Female
Indiana	51%	48%
Trauma	57%	43%
Non-Trauma	47%	53%

Patient Race

Indiana, Trauma, Non-Trauma

	White	Black or African American	Other Race	Not Known / Not Recorded
Indiana	79%	8%	1%	10%
Trauma	85%	12%	2%	1%
Non-Trauma	75%	4%	1%	19%
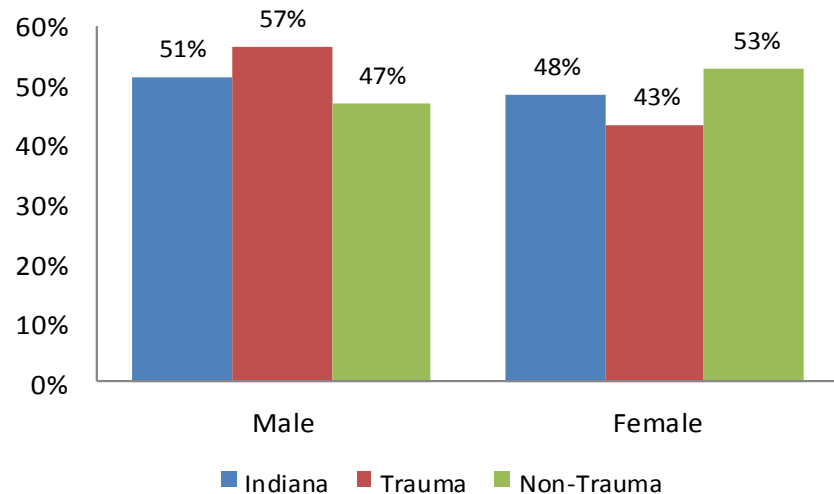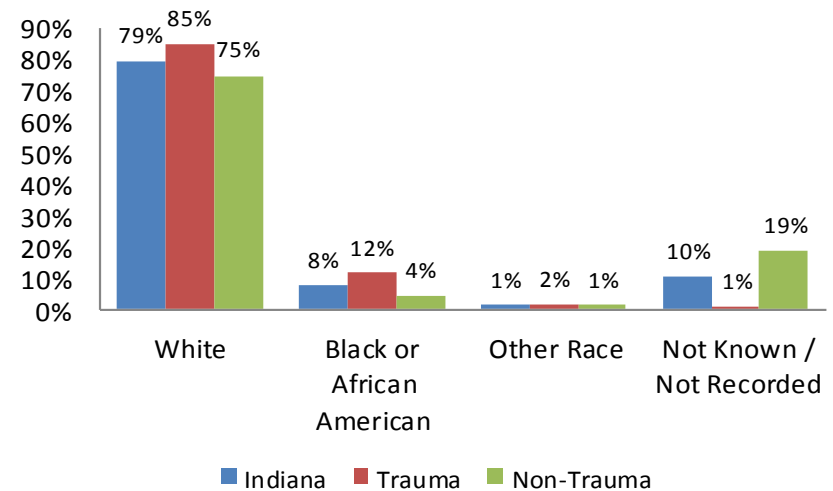
There were five unknown ages reported, which represents 0.07% of the data.

<1% Race - Asian, Native Hawaiian or Other Pacific Islander, American Indian or Alaska Native   2

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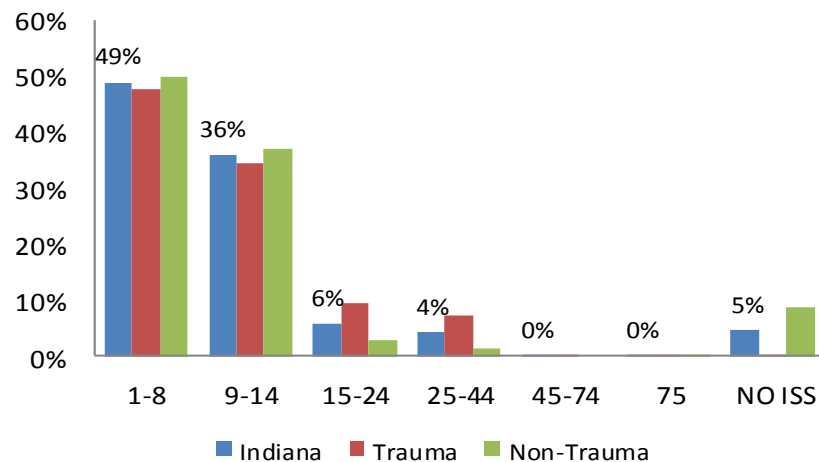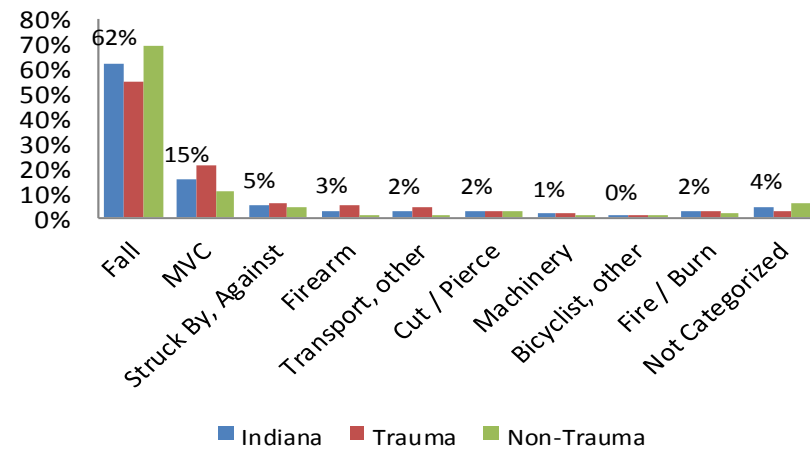Trauma Centers: 9 facilities   47.03% of data
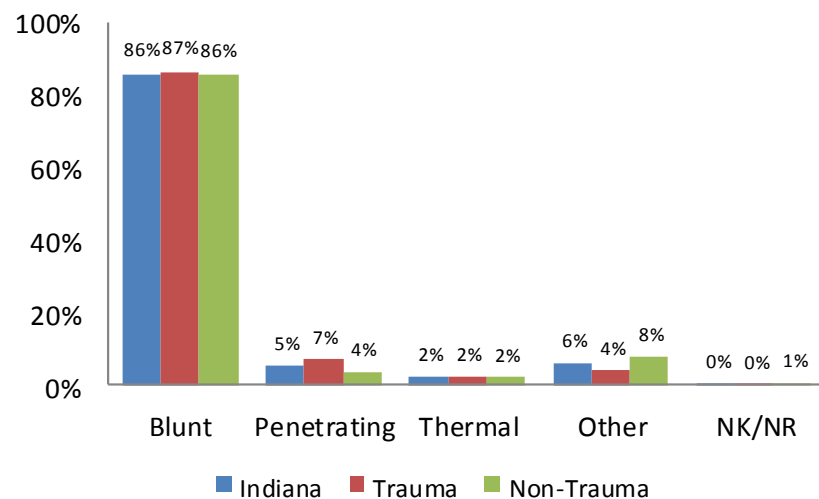
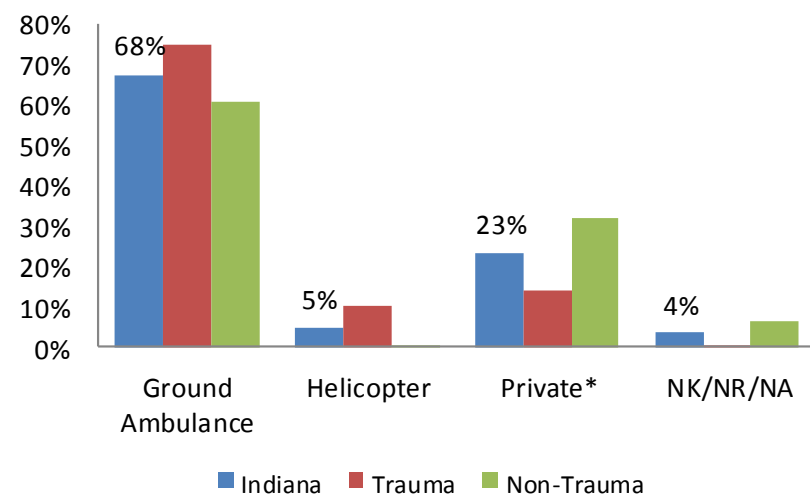## Injury Severity Score (ISS)

Cause of Injury

<1% COI: Pedestrian Traffic Accident, Natural/Environment, Fire/Burn, Overexertion, Bites/Stings, No E-Code

Trauma Type

Transport Mode

<1% Transport Mode: Police, Other   * Indicates Private/ Public Vehicle, Walk-in   3

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ED Disposition by Percentage

Indiana   Trauma   Non-Trauma

<1% ED Disposition: AMA; Home with Services; Other

ED Length of Stay (Hours)

Indiana   Trauma   Non-Trauma

ED LOS >12 Hours

N=133

ED Disposition for ED LOS >12 Hours

Floor Bed   ICU   Transferred
OR   Home w/o Services   Observation
Step-Down   NK/NR/NA   Expired
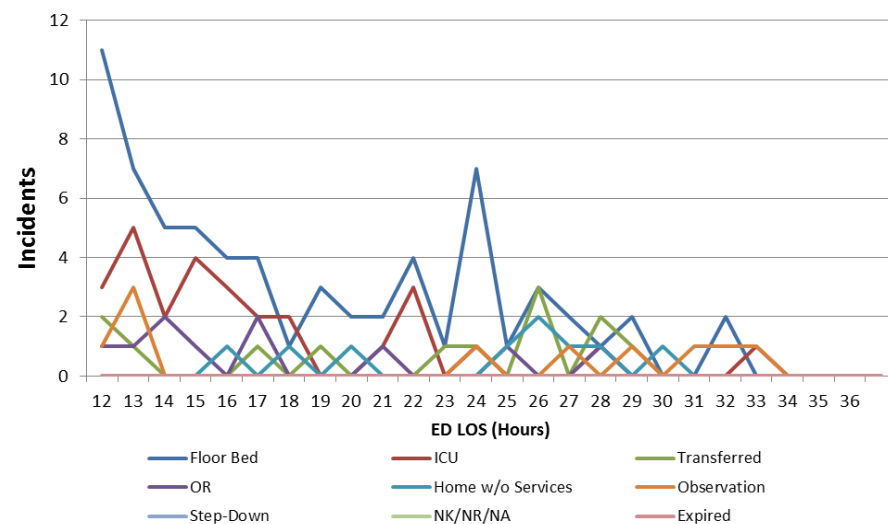
*One case expired at 19 hours

N=128

4

Indiana Trauma Registry

Statewide Quarter 1 Data Report
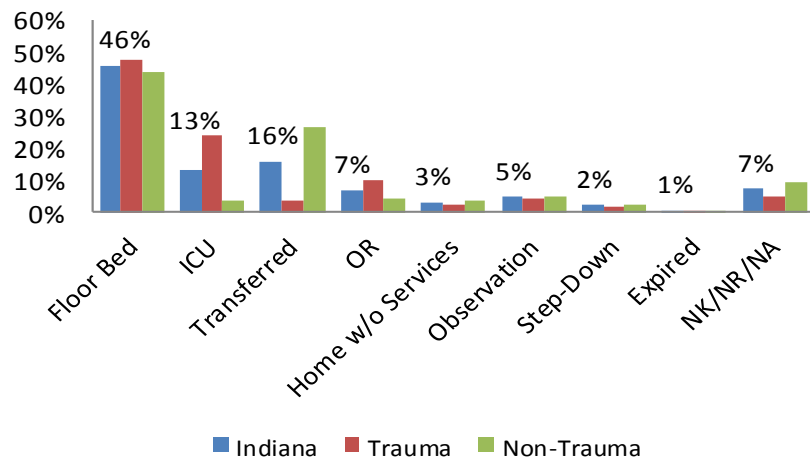**January 1, 2014 to March 31, 2014**
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ED LOS (Minutes)- All Patients

ED LOS (Minutes)- All Patients

A table with all the values for ED LOS is found on page 28. An explanation and example of bar and whisker plots can be found on page 31.

Indiana Trauma Registry

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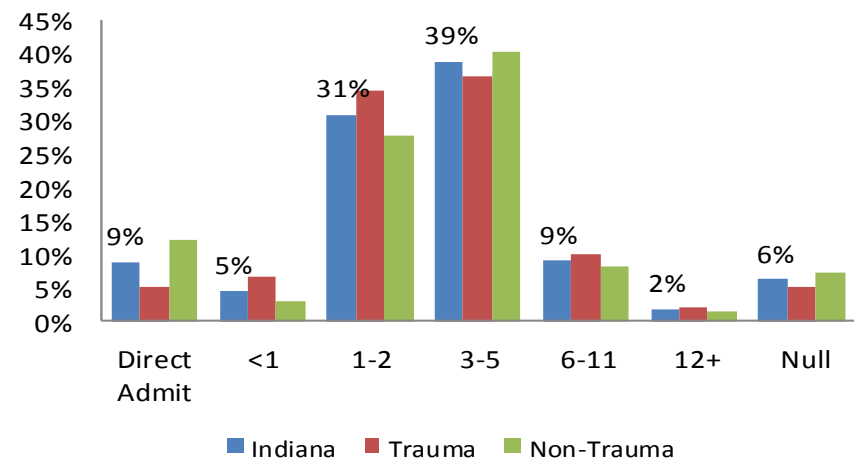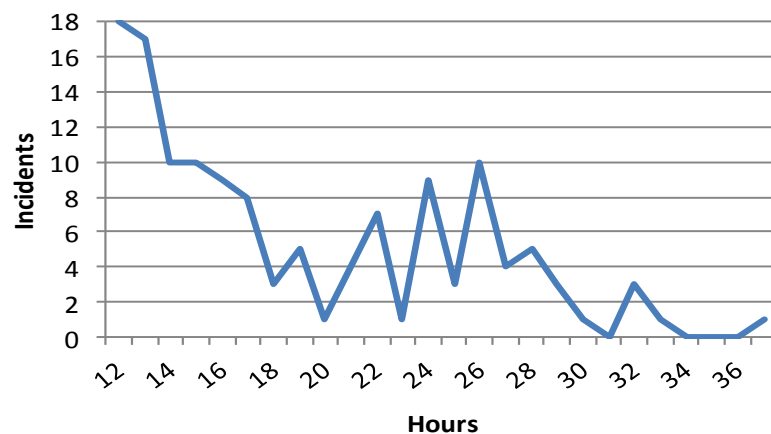**6,824 Incidents**

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All Patients

Average ED LOS (Hours)

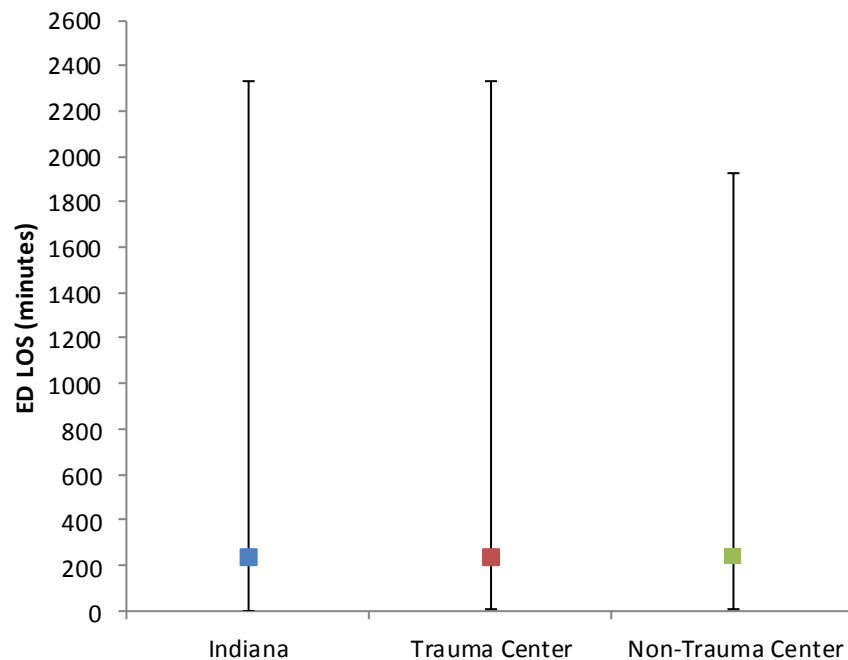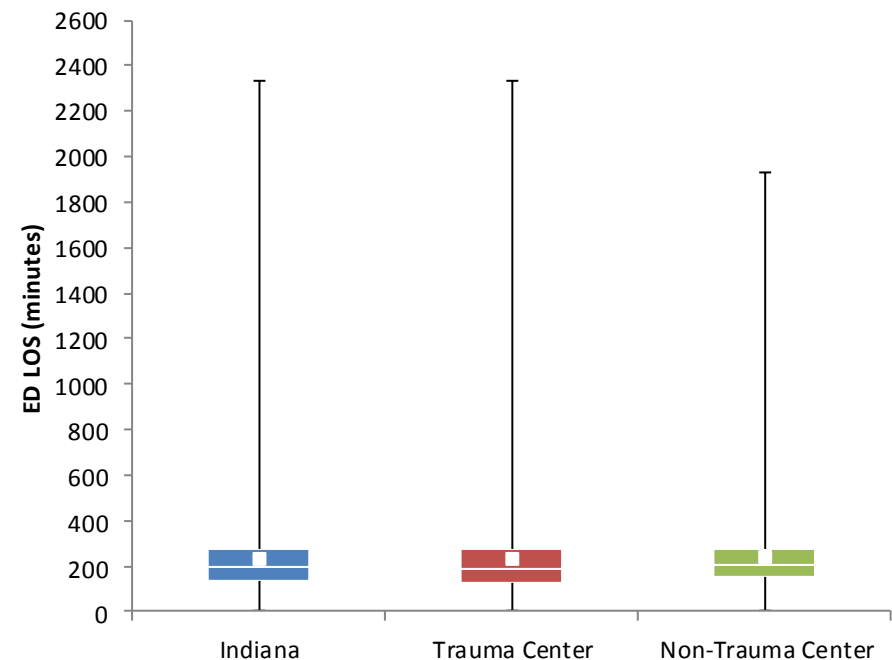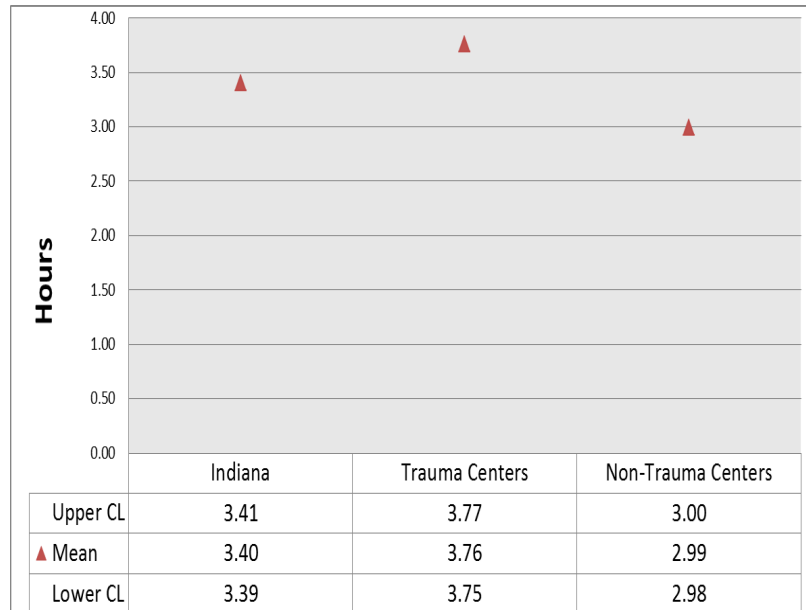|	Indiana	Trauma Centers	Non-Trauma Centers
Upper CL	3.41	3.77	3.00
▲ Mean	3.40	3.76	2.99
Lower CL	3.39	3.75	2.98

Trauma Centers-Average ED LOS (Hours)

	Trauma	50	28	11	124	35	129	83	78	39
Upper CL	3.77	2.03	3.29	3.33	3.86	3.95	4.00	4.27	4.75	5.84
▲ Mean	3.76	2.02	3.23	3.28	3.82	3.82	3.95	4.26	4.70	5.80
Lower CL	3.75	2.01	3.17	3.23	3.78	3.69	3.90	4.25	4.65	5.76

The purpose of the caterpillar graphs is to compare different groups to the average ED LOS. The Indiana mean is the comparison group, which is represented by the black line.

The ED LOS for these graphs was modeled using time-to-event analysis. The purposes of using this analysis were to account for censoring (death) and to see how variables influence ED LOS. The outcome variable was ED LOS and the independent variables were total GCS and age. If total GCS was missing but manual total GCS was recorded, then the manual total GCS was used. These two variables were used because they were the most similar to variables used in the published, peer-reviewed literature on ED LOS. Both were significant in the model. Increasing total GCS and age led to a slightly shorter ED LOS. Hospitals that did not have enough incidents with total GCS or age could not be modeled.

In the chart on the left, note the trauma center average is above the mean and the non-trauma center is below the mean. The mean, 95% confidence limit and lower confidence limit are listed for each group.

In the chart on the right, the data is for the trauma centers. The trauma center average is in the first column on the left side. The information for each trauma center has been assigned a random number for confidentiality. The mean, 95% confidence limit and lower confidence limit are listed for each group.

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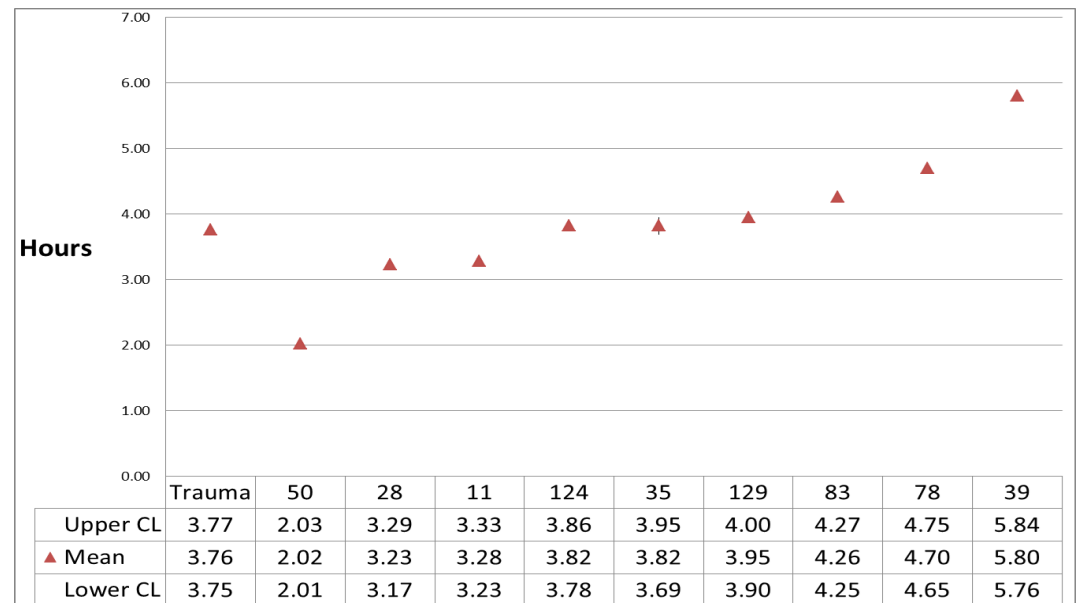**6,824 Incidents**

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All Patients
Non-Trauma Centers-
Average ED LOS (Hours)

	Non-Trauma	NT54	NT107	NT200	NT76	NT99	NT128	NT137	NT121	NT21	NT30	NT117	NT69	NT29	NT1	NT103	NT9	NT19	NT26	NT132	NT2	NT58	NT43	NT109	NT101
Upper CL	3	0.23	0.4	0.56	0.58	0.85	0.84	1.9	1.01	1.07	1.31	1.2	1.6	1.42	1.56	1.77	1.79	2.12	2.12	3.41	1.92	1.88	2.35	2.09	2.09
▲ Mean	2.99	0.12	0.31	0.42	0.51	0.63	0.7	0.71	0.89	1.03	1.05	1.1	1.19	1.23	1.33	1.44	1.45	1.57	1.64	1.72	1.78	1.79	1.9	1.91	1.92
Lower CL	2.98	0.01	0.22	0.28	0.44	0.41	0.56	-0.4	0.76	0.99	0.79	1.00	0.78	1.04	1.10	1.11	1.11	1.02	1.16	0.03	1.64	1.70	1.45	1.73	1.75

The purpose of the caterpillar graphs is to compare different groups to the average ED LOS. The Indiana mean is the comparison group, which is represented by the black line.

In the chart above, the data is for the non-trauma centers. The non-trauma center average is in the first column on the left side. Each non-trauma center has been assigned a random number for confidentiality. The mean, 95% confidence limit and lower confidence limit is listed for each group.

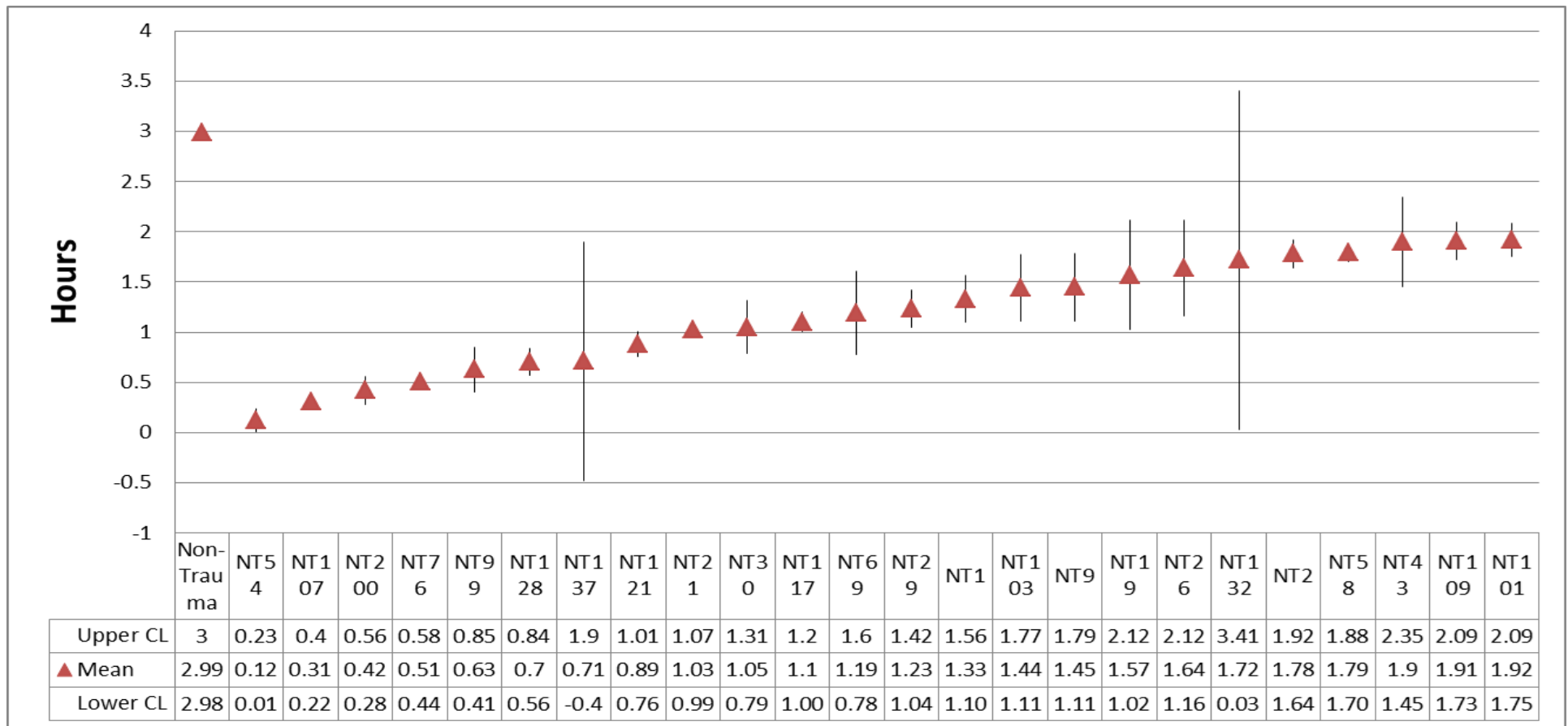# Indiana Trauma Registry
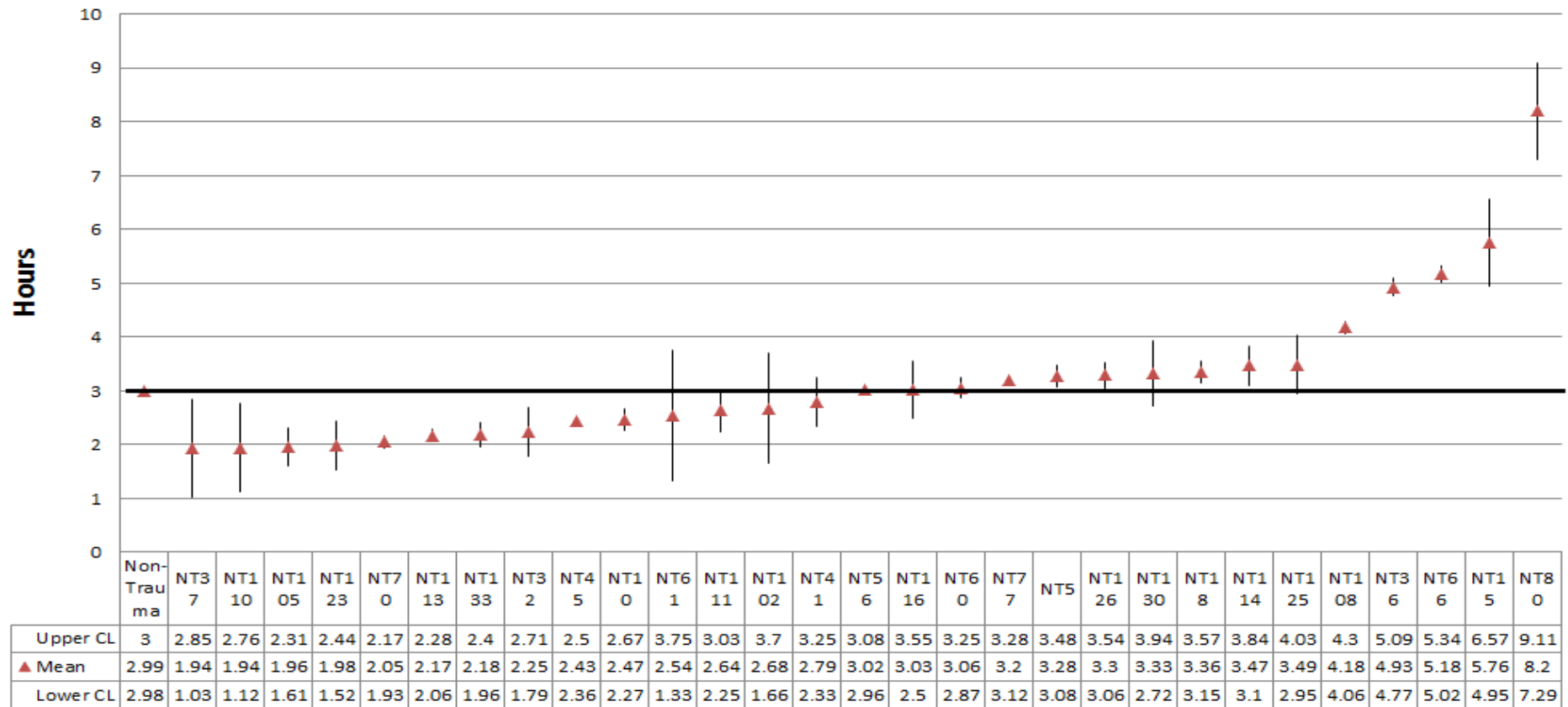
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All Patients
Non-Trauma Centers-
Average ED LOS (Hours)

	Non-Trauma	NT3 7	NT1 10	NT1 05	NT1 23	NT7 0	NT1 13	NT1 33	NT3 2	NT4 5	NT1 0	NT6 1	NT1 11	NT1 02	NT4 1	NT5 6	NT1 16	NT6 0	NT7 7	NT5	NT1 26	NT1 30	NT1 8	NT1 14	NT1 25	NT1 08	NT3 6	NT6 6	NT1 5	NT8 0
Upper CL	3	2.85	2.76	2.31	2.44	2.17	2.28	2.4	2.71	2.5	2.67	3.75	3.03	3.7	3.25	3.08	3.55	3.25	3.28	3.48	3.54	3.94	3.57	3.84	4.03	4.3	5.09	5.34	6.57	9.11
▲ Mean	2.99	1.94	1.94	1.96	1.98	2.05	2.17	2.18	2.25	2.43	2.47	2.54	2.64	2.68	2.79	3.02	3.03	3.06	3.2	3.28	3.3	3.33	3.36	3.47	3.49	4.18	4.93	5.18	5.76	8.2
Lower CL	2.98	1.03	1.12	1.61	1.52	1.93	2.06	1.96	1.79	2.36	2.27	1.33	2.25	1.66	2.33	2.96	2.5	2.87	3.12	3.08	3.06	2.72	3.15	3.1	2.95	4.06	4.77	5.02	4.95	7.29

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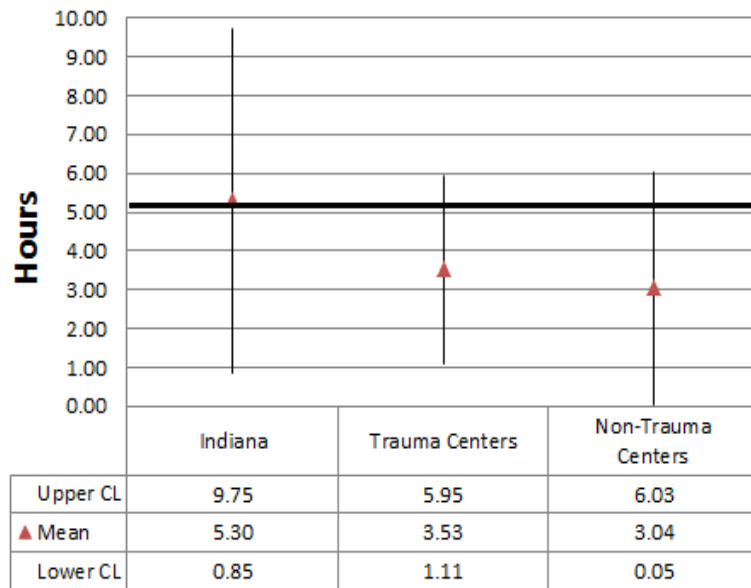## Statewide Quarter 1 Data Report
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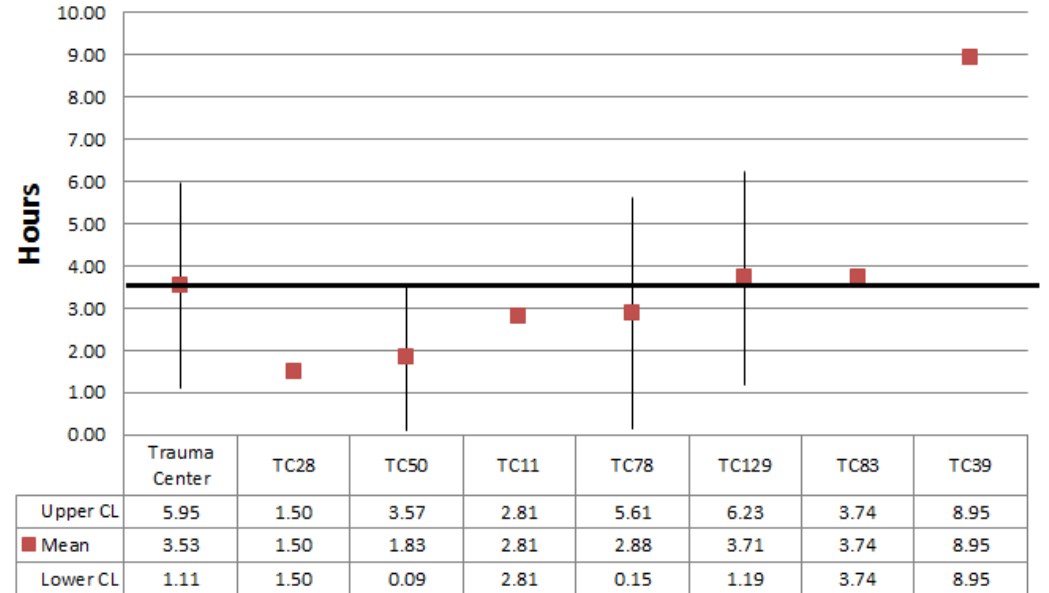**6,824 Incidents**

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Transferred Patients

Average ED LOS (Hours)

	Indiana	Trauma Centers	Non-Trauma Centers
Upper CL	9.75	5.95	6.03
▲ Mean	5.30	3.53	3.04
Lower CL	0.85	1.11	0.05

Trauma Centers-Average ED LOS (Hours)

	Trauma Center	TC28	TC50	TC11	TC78	TC129	TC83	TC39
Upper CL	5.95	1.50	3.57	2.81	5.61	6.23	3.74	8.95
■ Mean	3.53	1.50	1.83	2.81	2.88	3.71	3.74	8.95
Lower CL	1.11	1.50	0.09	2.81	0.15	1.19	3.74	8.95

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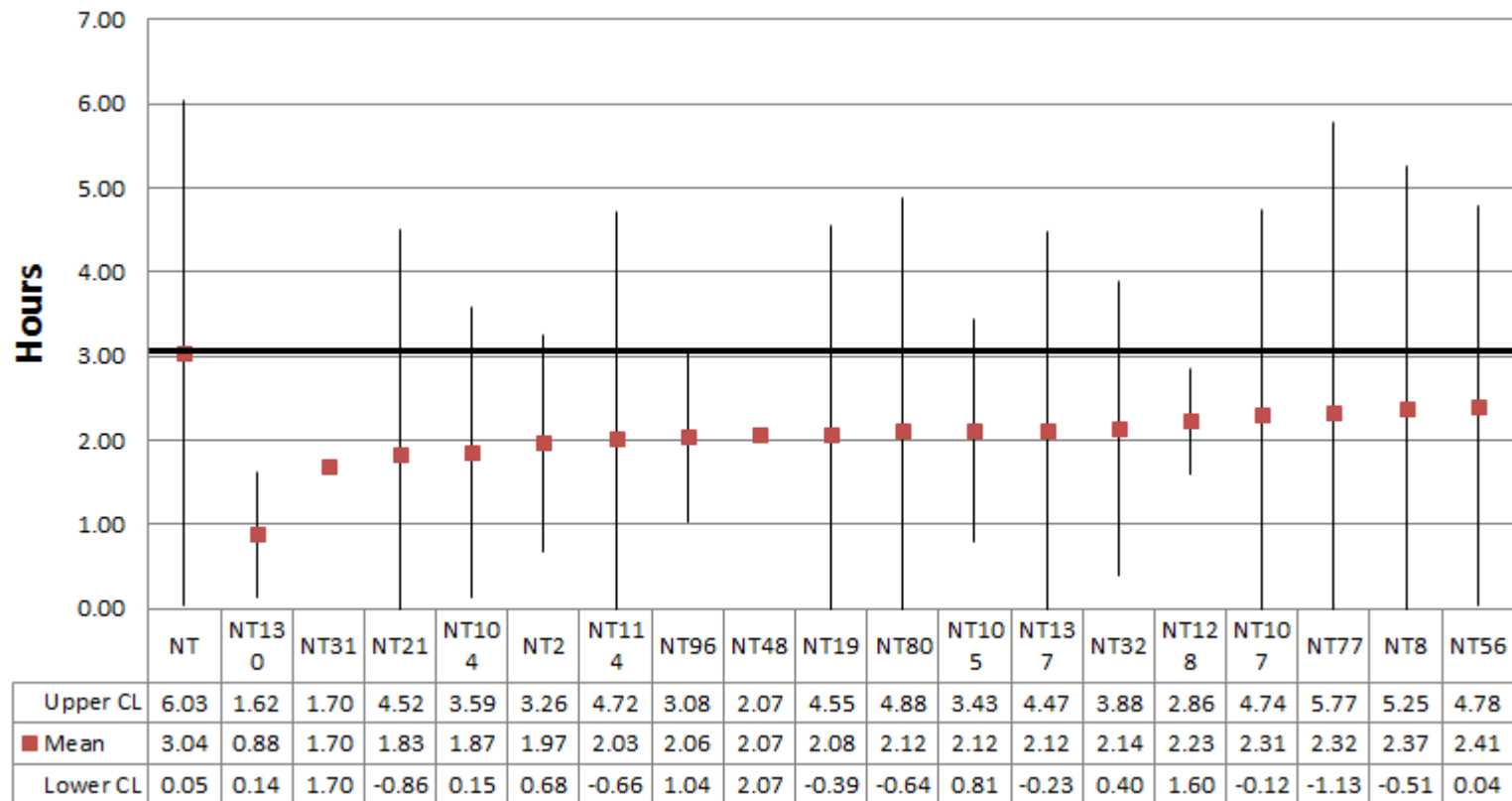# Indiana Trauma Registry
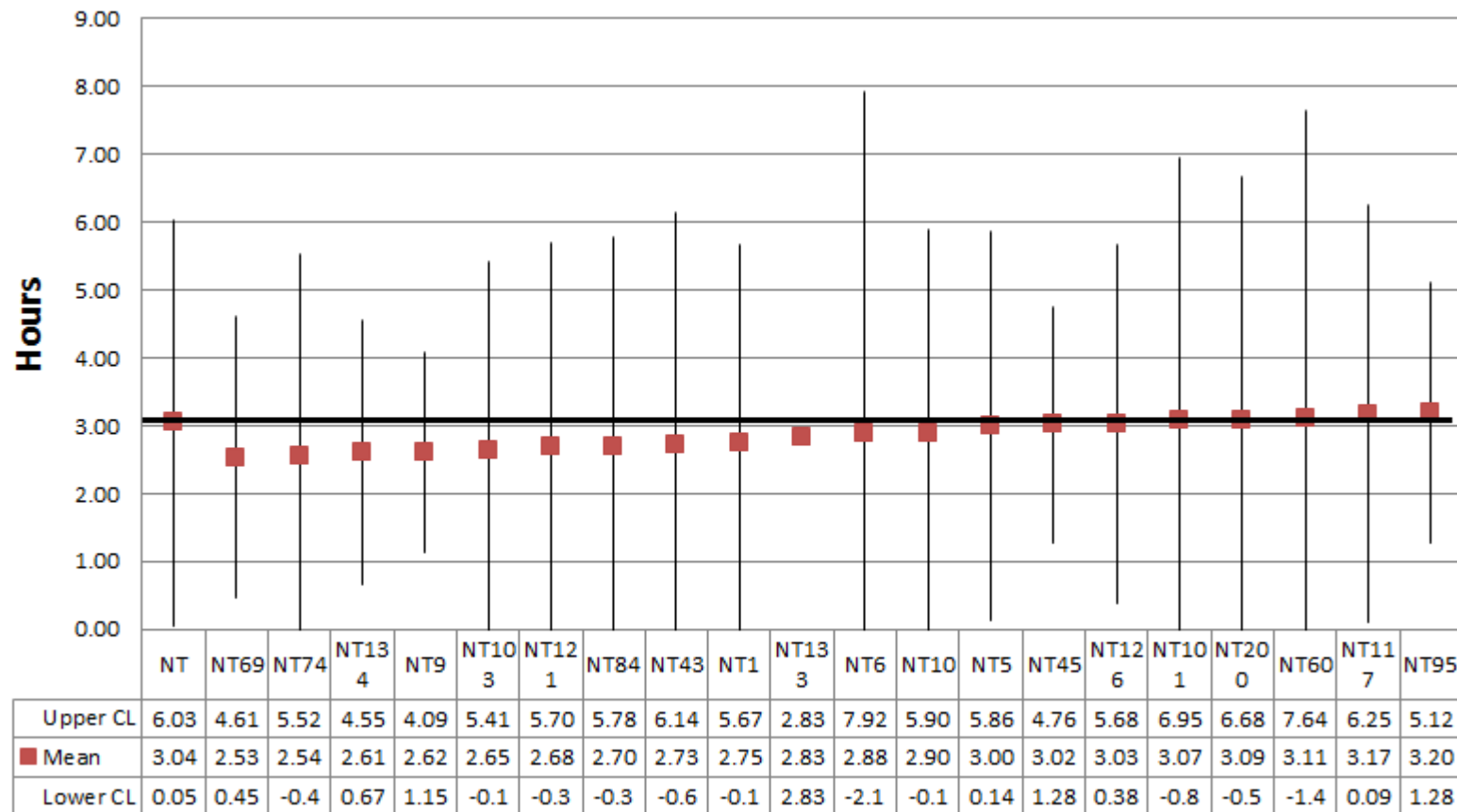
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Transferred Patients
Non-Trauma Centers-
Average ED LOS (Hours)

	NT	NT130	NT31	NT21	NT104	NT2	NT114	NT96	NT48	NT19	NT80	NT105	NT137	NT32	NT128	NT107	NT77	NT8	NT56
Upper CL	6.03	1.62	1.70	4.52	3.59	3.26	4.72	3.08	2.07	4.55	4.88	3.43	4.47	3.88	2.86	4.74	5.77	5.25	4.78
■ Mean	3.04	0.88	1.70	1.83	1.87	1.97	2.03	2.06	2.07	2.08	2.12	2.12	2.12	2.14	2.23	2.31	2.32	2.37	2.41
Lower CL	0.05	0.14	1.70	-0.86	0.15	0.68	-0.66	1.04	2.07	-0.39	-0.64	0.81	-0.23	0.40	1.60	-0.12	-1.13	-0.51	0.04

The purpose of the caterpillar graphs is to compare different groups to the average ED LOS. The Indiana mean is the comparison group, which is represented by the black line.

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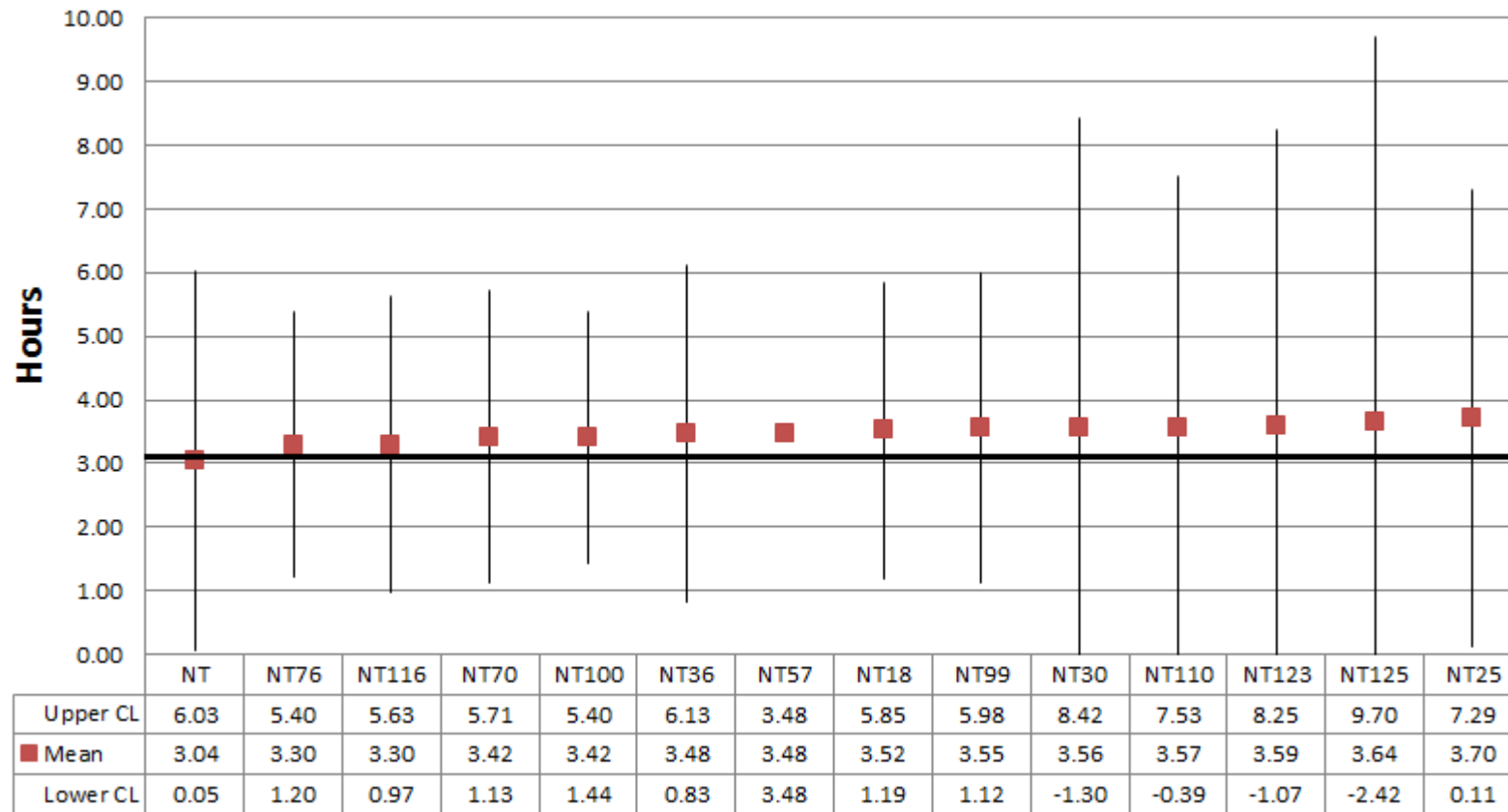
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Non-Trauma Centers-
Average ED LOS (Hours)

	NT	NT69	NT74	NT134	NT9	NT103	NT121	NT84	NT43	NT1	NT133	NT6	NT10	NT5	NT45	NT126	NT101	NT200	NT60	NT117	NT95
Upper CL	6.03	4.61	5.52	4.55	4.09	5.41	5.70	5.78	6.14	5.67	2.83	7.92	5.90	5.86	4.76	5.68	6.95	6.68	7.64	6.25	5.12
■ Mean	3.04	2.53	2.54	2.61	2.62	2.65	2.68	2.70	2.73	2.75	2.83	2.88	2.90	3.00	3.02	3.03	3.07	3.09	3.11	3.17	3.20
Lower CL	0.05	0.45	-0.4	0.67	1.15	-0.1	-0.3	-0.3	-0.6	-0.1	2.83	-2.1	-0.1	0.14	1.28	0.38	-0.8	-0.5	-1.4	0.09	1.28

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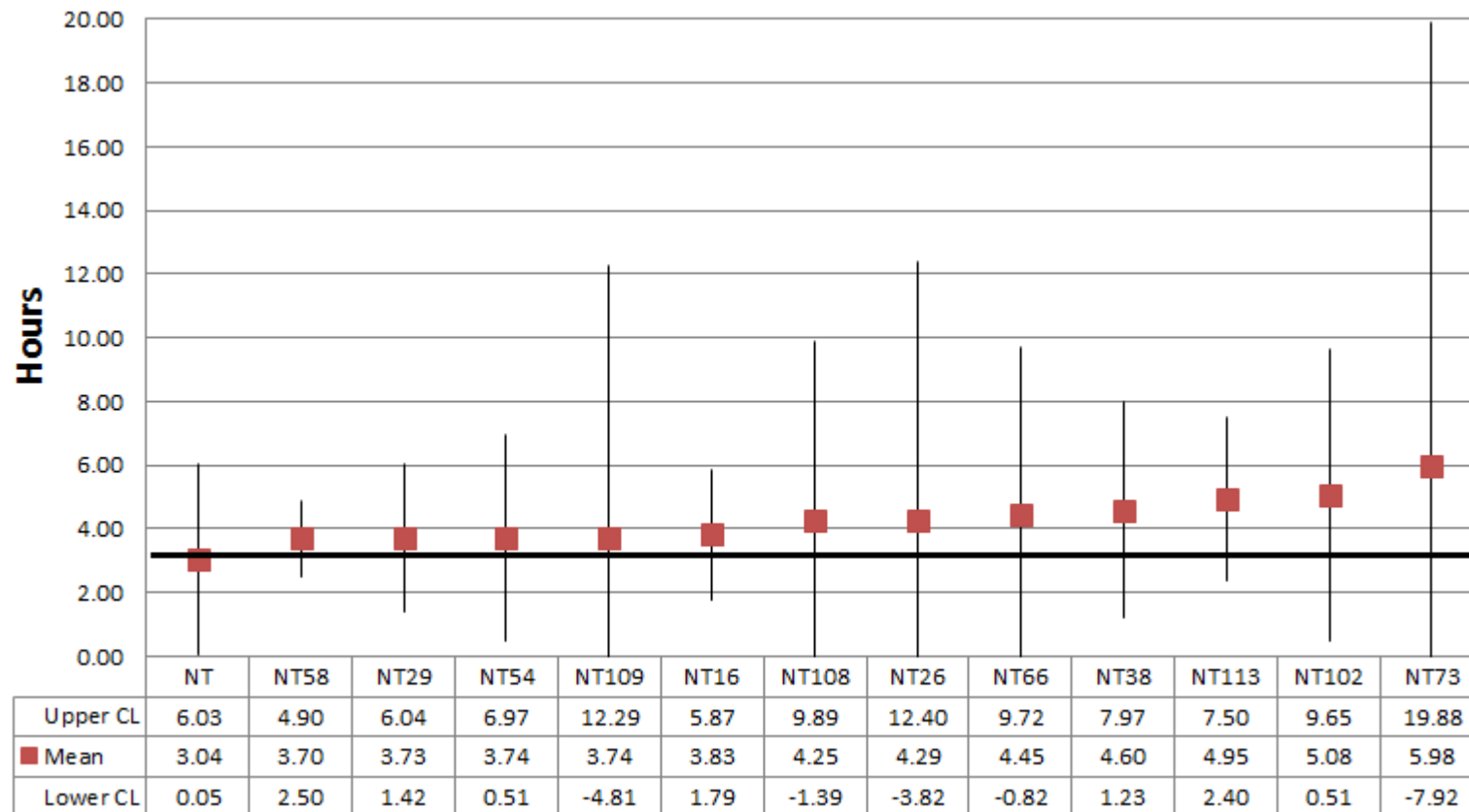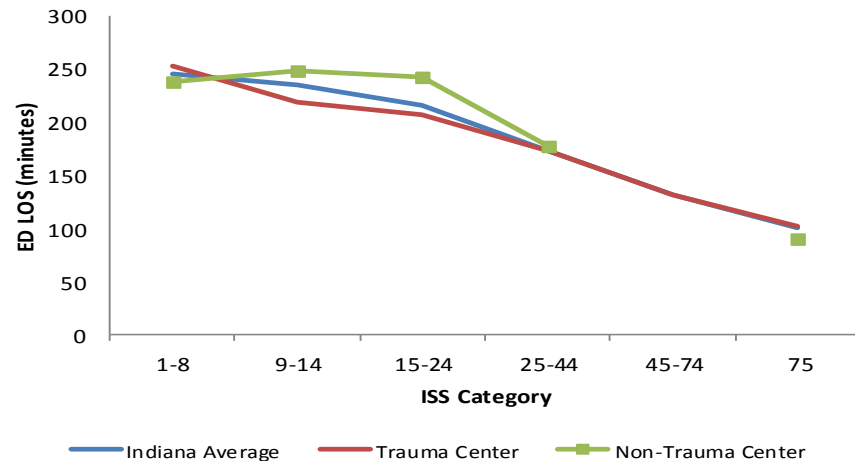
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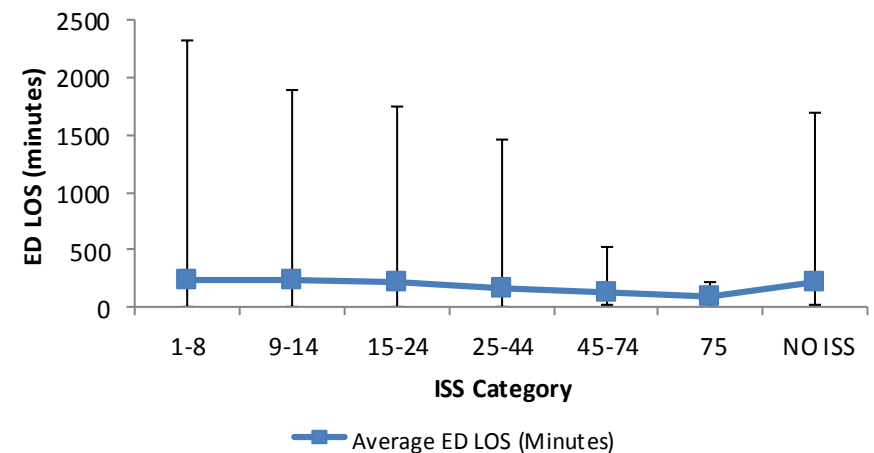**6,824 Incidents**

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Non-Trauma Centers-
Average ED LOS (Hours)

	NT	NT76	NT116	NT70	NT100	NT36	NT57	NT18	NT99	NT30	NT110	NT123	NT125	NT25
Upper CL	6.03	5.40	5.63	5.71	5.40	6.13	3.48	5.85	5.98	8.42	7.53	8.25	9.70	7.29
■ Mean	3.04	3.30	3.30	3.42	3.42	3.48	3.48	3.52	3.55	3.56	3.57	3.59	3.64	3.70
Lower CL	0.05	1.20	0.97	1.13	1.44	0.83	3.48	1.19	1.12	-1.30	-0.39	-1.07	-2.42	0.11

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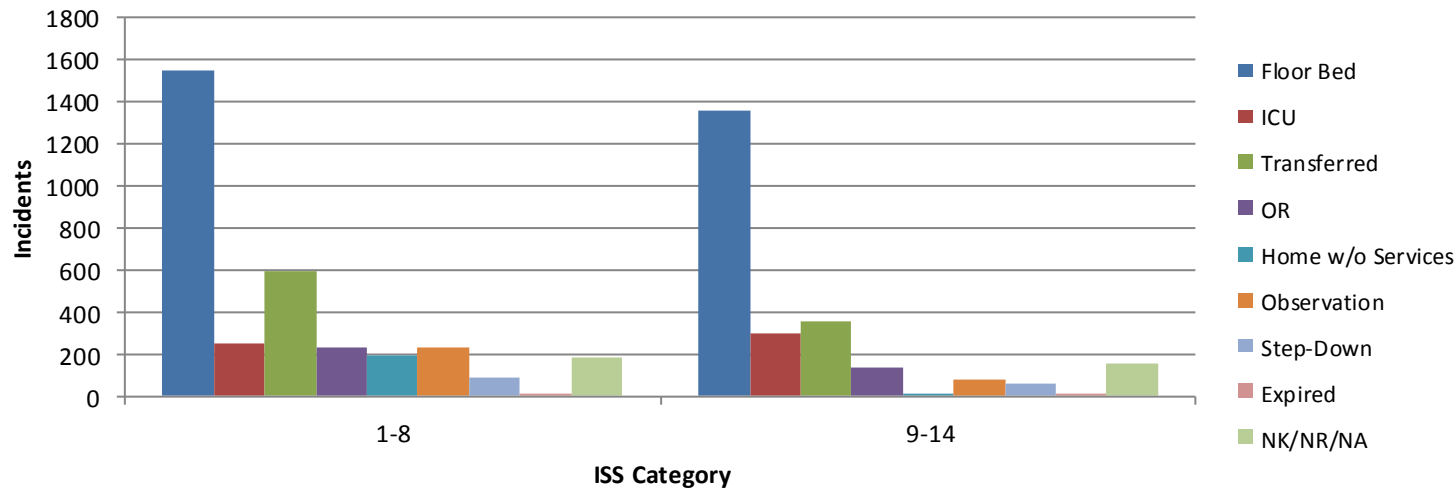|		
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Transferred Patients
Non-Trauma Centers-
Average ED LOS (Hours)

	NT	NT58	NT29	NT54	NT109	NT16	NT108	NT26	NT66	NT38	NT113	NT102	NT73
Upper CL	6.03	4.90	6.04	6.97	12.29	5.87	9.89	12.40	9.72	7.97	7.50	9.65	19.88
■ Mean	3.04	3.70	3.73	3.74	3.74	3.83	4.25	4.29	4.45	4.60	4.95	5.08	5.98
Lower CL	0.05	2.50	1.42	0.51	-4.81	1.79	-1.39	-3.82	-0.82	1.23	2.40	0.51	-7.92

The purpose of the caterpillar graphs is to compare different groups to the average ED LOS. The Indiana mean is the comparison group, which is represented by the black line.

In the chart above, the data is for the non-trauma centers. The non-trauma center average is in the first column on the left side. Each non-trauma center has been assigned a random number for confidentiality. The mean, 95% confidence limit and lower confidence limit is listed for each group.

Indiana Trauma Registry

Statewide Quarter 1 Data Report
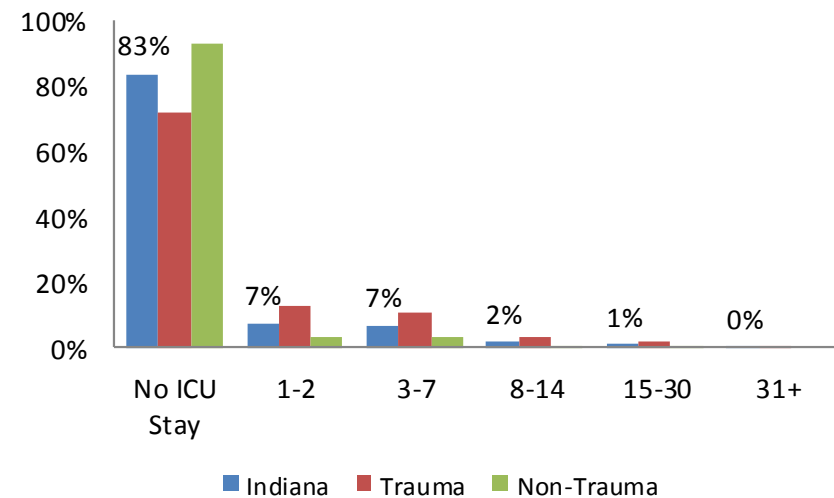**January 1, 2014 to March 31, 2014**
6,824 Incidents

ED LOS (Minutes) by ISS

Indiana Average — Trauma Center — Non-Trauma Center

ED LOS (Minutes) by ISS

Average ED LOS (Minutes)

ED LOS (Minutes) by ISS

Average ED LOS (Minutes)

*A table with values for ED LOS by ISS is found on page 28. Note for ED LOS by ISS, there were 22 cases at Non-Trauma Centers with ISS greater than 45.

Indiana Trauma Registry

Statewide Quarter 1 Data Report
January 1, 2014 to March 31, 2014
6,824 Incidents

88 Total Hospitals Reporting
Trauma Centers: 9 facilities 47.03% of data
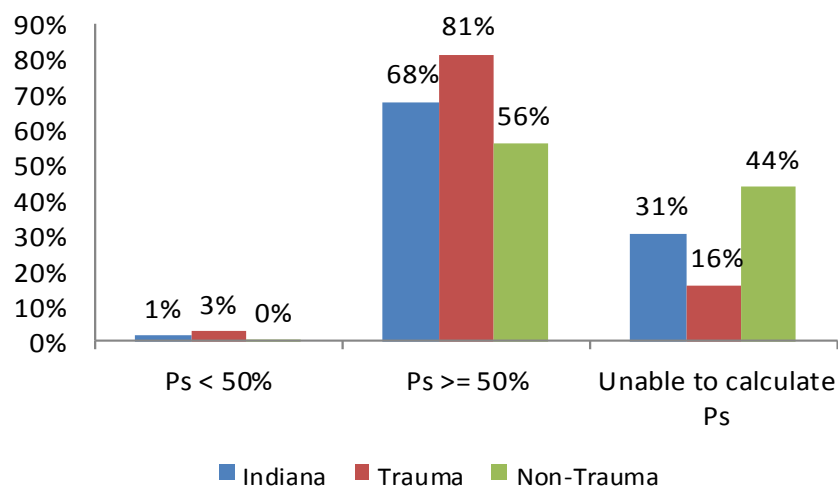(Non-Trauma) Hospitals: 79 facilities 52.97% of data

ED Disposition by ISS
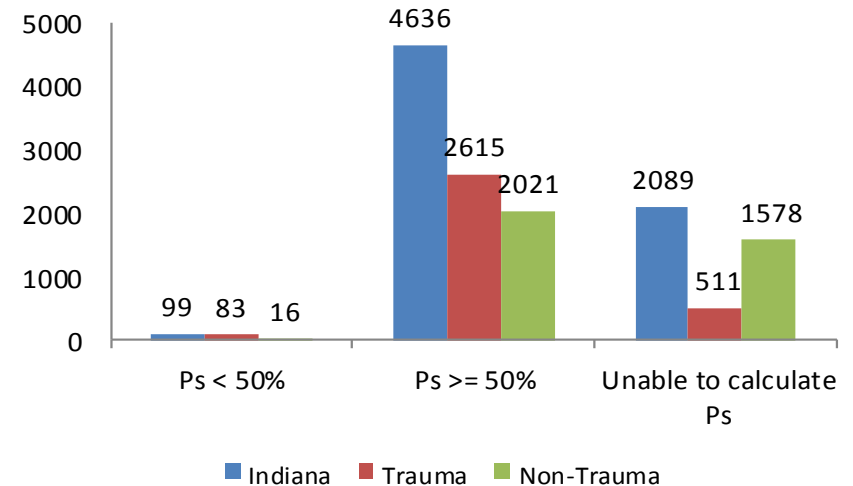

ED Disposition by ISS 15-75
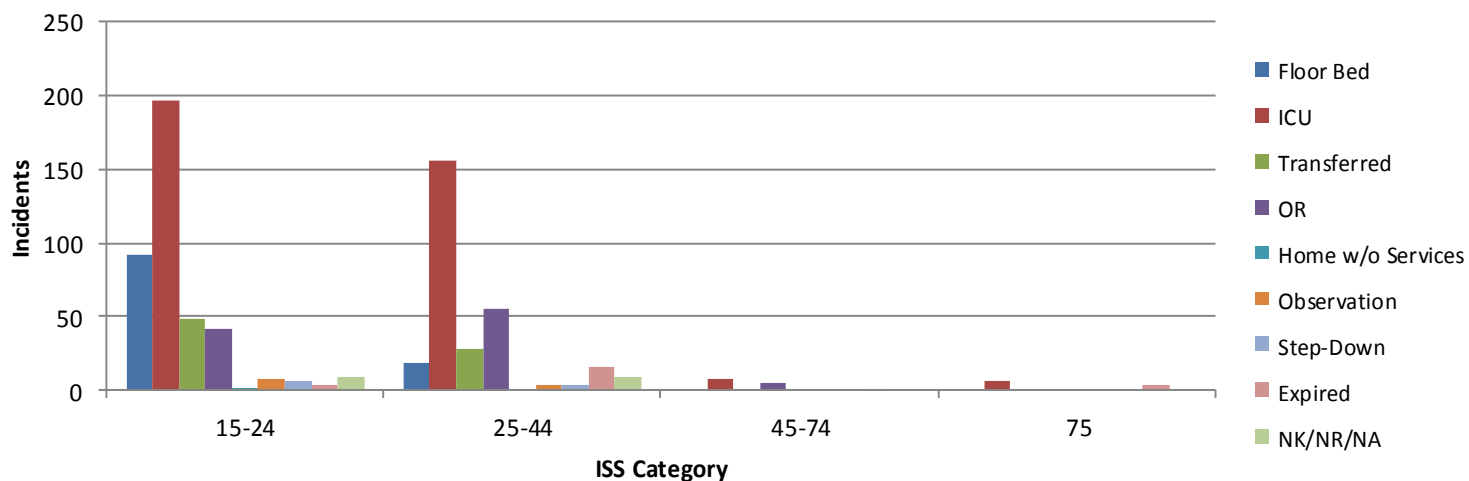
ED Disposition <1%: AMA; Home with services; Other (Jail, Mental Institution, etc.). Please note the difference in axis scale between the top and bottom graphs.
*A table with values for ED Disposition by ISS is found on page 28.

Indiana Trauma Registry

Statewide Quarter 1 Data Report
January 1, 2014 to March 31, 2014
6,824 Incidents

88 Total Hospitals Reporting
Trauma Centers: 9 facilities   47.03% of data
(Non-Trauma) Hospitals: 79 facilities   52.97% of data

Primary Payer Mix
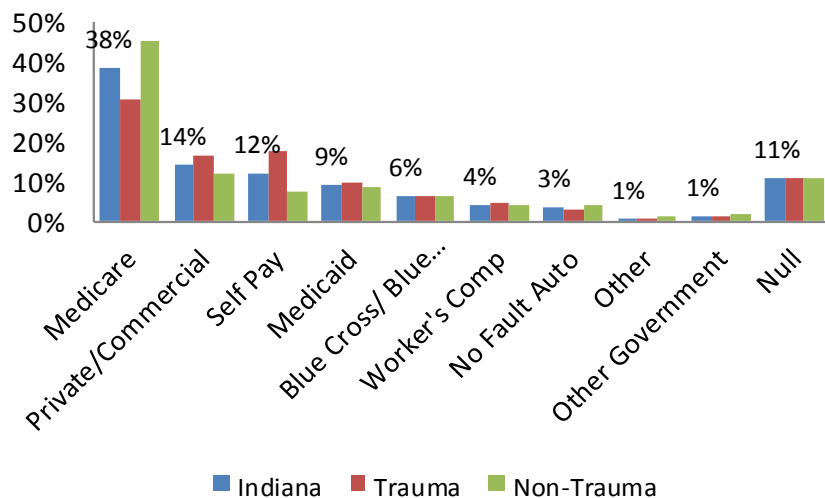
ICU Length of Stay (Days)

Probability of Survival (Ps) by Percent

Probability of Survival (Ps) by Count

Due to the many data points required to calculate Ps, not every patient has a calculated Ps. These two graph represents 4,735 incidents with calculated Ps.

Indiana Trauma Registry

Statewide Quarter 1 Data Report

January 1, 2014 to March 31, 2014

6,824 Incidents

88 Total Hospitals Reporting

Trauma Centers:	9 facilities	47.03% of data
(Non-Trauma) Hospitals:	79 facilities	52.97% of data

ED Disposition of Expired for Ps ≥50%, N=3

Patients with Ps ≥50% Expired in ED, N=3

Gender	1 Female, 2 Males
Average Age	65.3 years (30-89 years)
Facilities	2 Non-Trauma Centers 1 Trauma Center
Transport Type	2 Ground ambulance; 1 Not Known
Cause of Injury	2 Falls, 1 Firearm
Inter-Facility Transfer	1 Yes; 2 No
Average Distance from Scene to Facility	13 miles (4.9-28.8 miles)
Signs of Life	3 Arrived with signs of life

Trauma Type
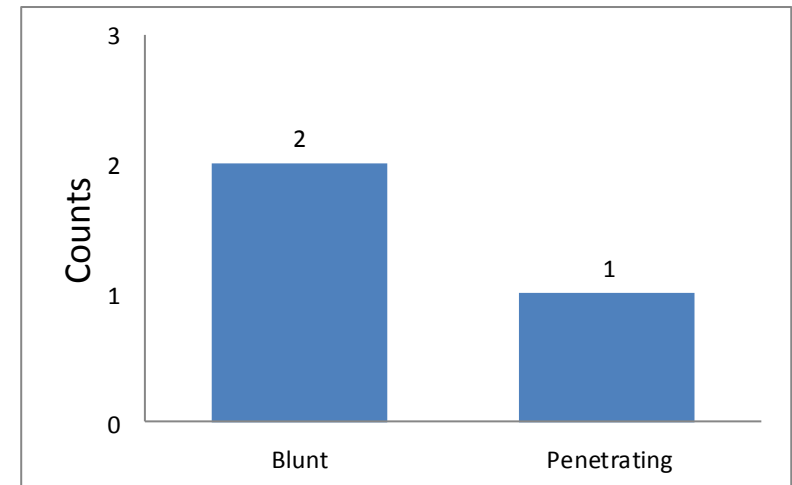
	Trauma Type	ISS	RTS- GCS Scale	RTS- Systolic Scale	RTS- Respiratory Scale	Revised Trauma Score (RTS)	B Value	PS	Signs of life
1	Blunt	17	4	4	3	7.55	2.49	0.9234	Arrived with signs of Life
2	Penetrating	9	0	4	3	3.8	0.66	0.6584	Arrived with signs of Life
3	Blunt	10	4	4	3	7.55	3.08	0.9559	Arrived with signs of Life

Indiana Trauma Registry

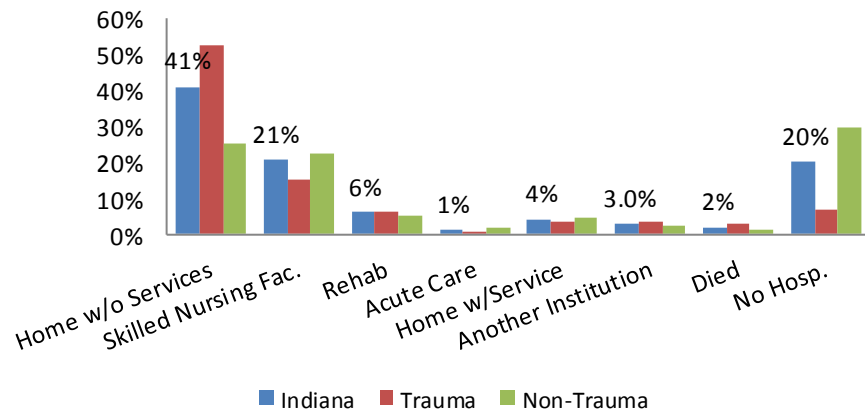## Statewide Quarter 1 Data Report
January 1, 2014 to March 31, 2014
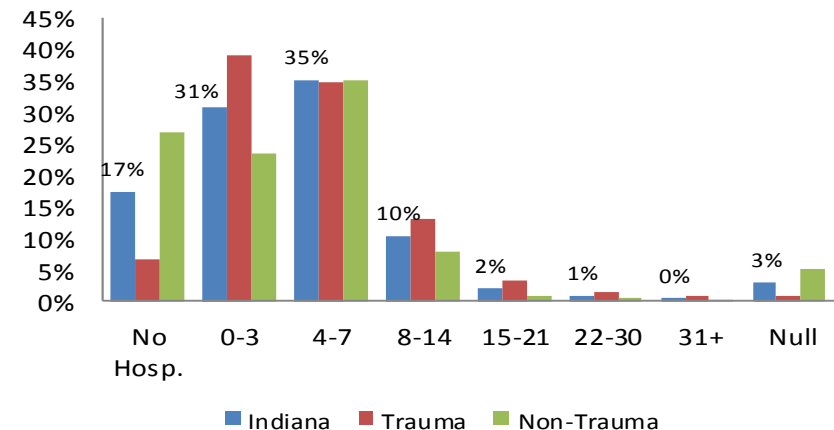**6,824 Incidents**

88 Total Hospitals Reporting
Trauma Centers: 9 facilities   47.03% of data
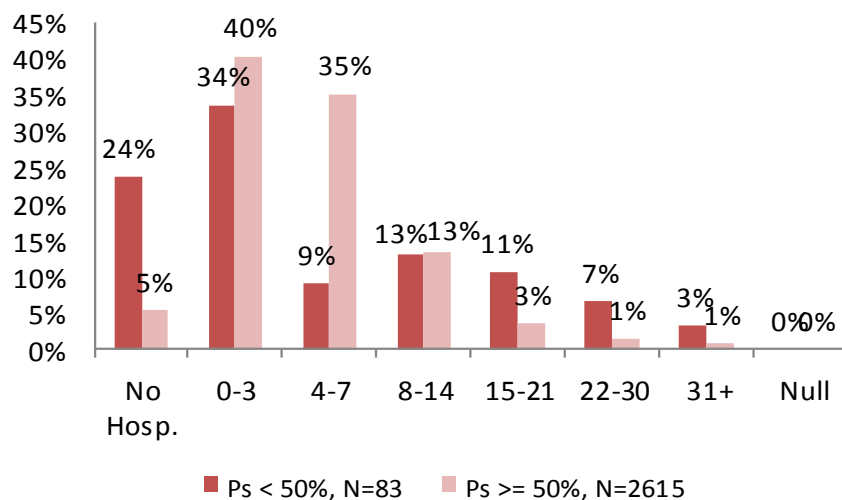(Non-Trauma) Hospitals: 79 facilities   52.97% of data
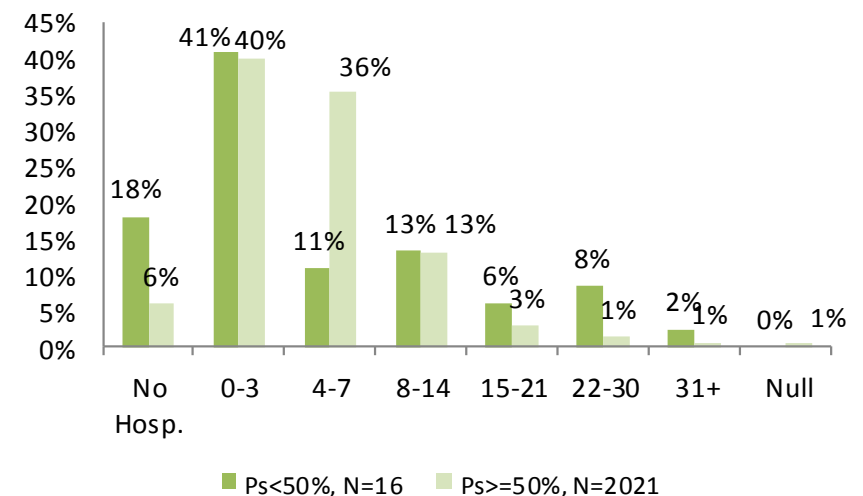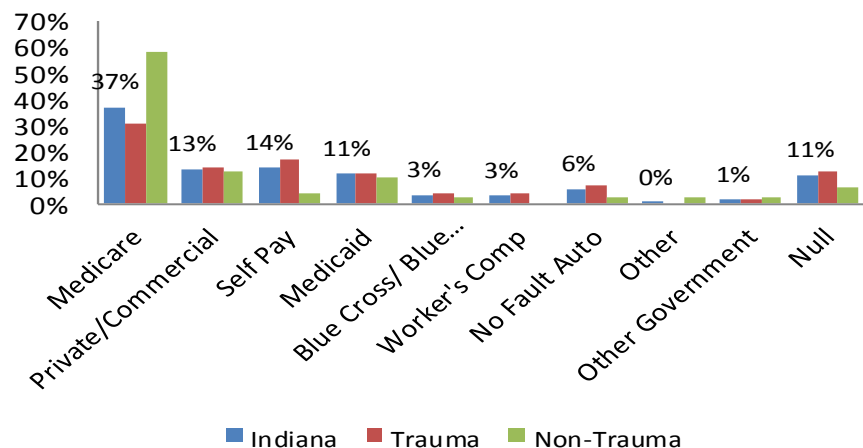
Hospital Disposition

Legend: ■ Indiana ■ Trauma ■ Non-Trauma

Hospital Length of Stay (days)

Legend: ■ Indiana ■ Trauma ■ Non-Trauma

*There are new categories for the Hospital Disposition for the 2014 Data Dictionary
<1%: null, psych., long term care hospital, AMS, hospice, intermediate care

Hospital LOS (days) by Ps Trauma Centers

Legend: ■ Ps < 50%, N=83 ■ Ps >= 50%, N=2615

Hospital LOS (days) by Ps Non-Trauma Centers

Legend: ■ Ps<50%, N=16 ■ Ps>=50%, N=2021

Indiana Trauma Registry

Statewide Quarter 1 Data Report
January 1, 2014 to March 31, 2014
6,824 Incidents
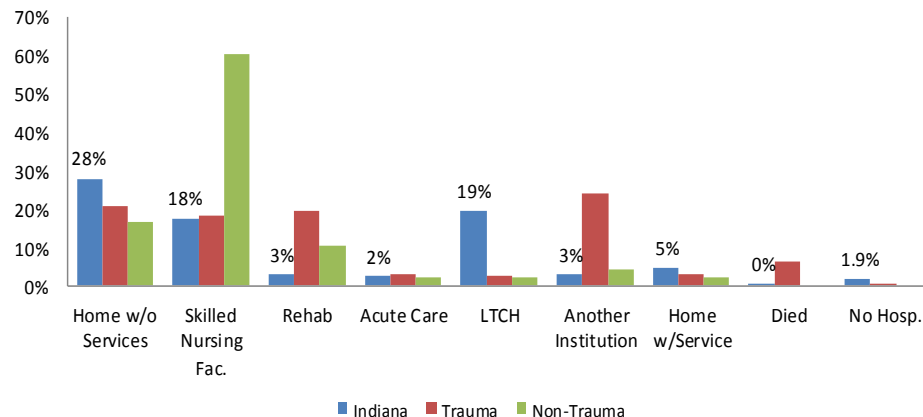
88 Total Hospitals Reporting
Trauma Centers: 9 facilities   47.03% of data
(Non-Trauma) Hospitals: 79 facilities   52.97% of data

Hospital Length of Stay > 15 days, N=230
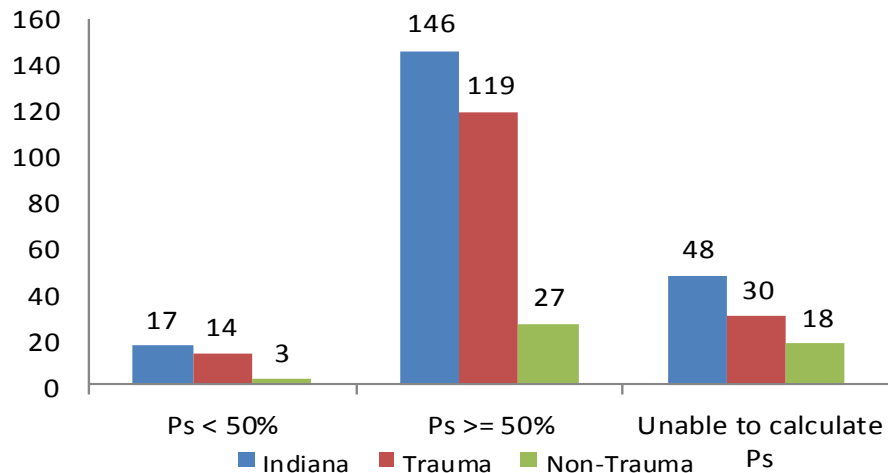
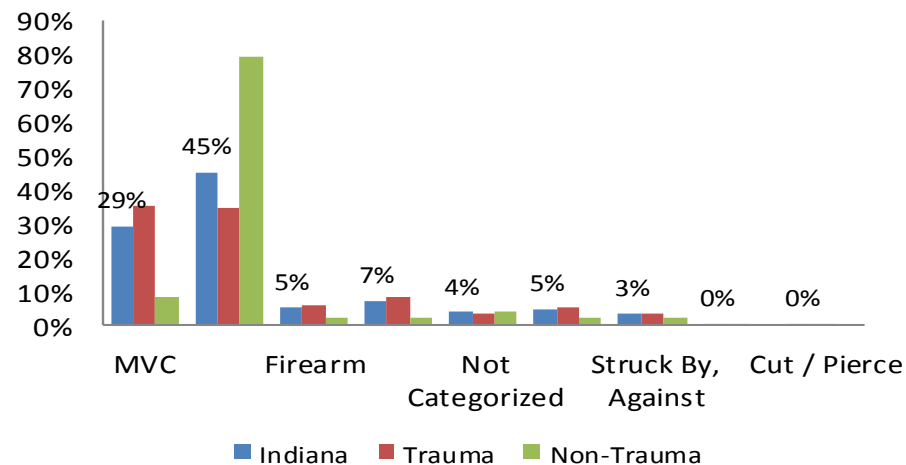### Primary Payer Mix

Hospital Disposition

*There are new categories for the Hospital Disposition for the 2014 Data Dictionary

Probability of Survival

Cause of Injury

Hospital Length of Stay > 15 Days: Total N=230;   Trauma Center N= 177;   Non-Trauma Center N=53

Indiana Trauma Registry

Statewide Quarter 1 Data Report
January 1, 2014 to March 31, 2014
6,824 Incidents—501 Transfers

88 Total Hospitals Reporting
Trauma Centers:	9 facilities	47.03% of data
(Non-Trauma) Hospitals:	79 facilities	52.97% of data

For Quarter 1 2014, of the 6,824 incidents reported to the Indiana Trauma Registry, 1,090 cases that had an ED Disposition of "Transferred to another acute care facility" at the initial facility or that had the Inter-Facility Transfer equal to "Yes" at the Trauma Center. Of those transferred, 501 cases were probabilistically matched. The linked cases make up 14.7% of the Q1 2014 data. All public health preparedness districts are represented. The diagram below illustrates the overlap between the transfers reported from the initial facility and from the final facility that can be matched.

Initial Facility: 1,090 Incidents
Matched: 501 Incidents
Final Facility: 1,327 Incidents
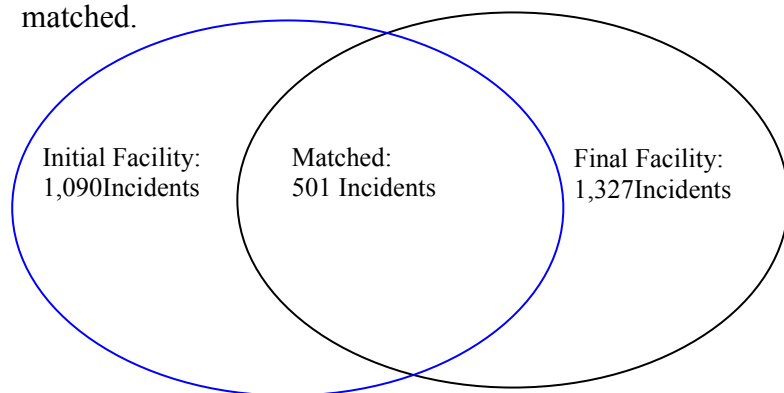
The initial facility in which transfers come from may be considered Critical Access Hospitals (CAHs). All Indiana CAHs are considered Rural, and must meet additional requirements to have a CAH designation, such as having no more than 25 inpatient beds and being located in a rural area. Facilities that are highlighted indicate that this facility reported data for Quarter 1, 2014.

Within this transfer data section, the purple columns represent the transfer cases and the single percentages represent the percent for the transfer cases. For two demographic variables, patient age groupings and gender, the Indiana average is included to provide more insight to this transfer population.

Indiana Critical Access Hospitals (CAHs)

Adams Memorial Hospital	Pulaski Memorial Hospital
Cameron Memorial Community Hospital	Putnam County Hospital
Community Hospital of Bremen	Rush Memorial Hospital
Decatur County Memorial Hospital	Scott Memorial Hospital
Dukes Memorial Hospital	St. Mary's Warrick Hospital
Gibson General Hospital	St. Vincent – Clay Hospital
Greene County General Hospital	St. Vincent – Dunn Hospital
Harrison County Hospital	St. Vincent – Frankfort Hospital
IU Health – Bedford Hospital	St. Vincent – Jennings Hospital
IU Health – Blackford Hospital	St. Vincent – Mercy Hospital
IU Health – Paoli Hospital	St. Vincent – Randolph Hospital
IU Health – Tipton Hospital	St. Vincent- Salem Hospital
IU Health – White Memorial Hospital	St. Vincent – Williamsport Hospital
Jasper County Hospital	Sullivan County Community Hospital
Jay County Hospital	Union Hospital Clinton
Margaret Mary Community Hospital	Wabash County Hospital
Parkview LaGrange Hospital	Woodlawn Hospital
Perry County Memorial Hospital	

Indiana Rural Hospitals

Columbus Regional Hospital	Kosciusko Community Hospital
Fayette Regional Health System	Marion General Hospital
Franciscan St. Anthony Health – Michigan City	Memorial Hospital (Logansport)
Franciscan St. Elizabeth Health – Crawfordsville	Memorial Hospital & Health Care Center (Jasper)
Good Samaritan Hospital	Parkview Noble Hospital
Henry County Memorial Hospital	Reid Hospital & Health Care Services
IU Health – LaPorte Hospital	St. Joseph's Regional Medical Center – Plymouth
IU Health – Starke Hospital	Schneck Medical Center
King's Daughters' Health	

Indiana Trauma Registry

Statewide Quarter 1 Data Report
January 1, 2014 to March 31, 2014
6,824 Incidents—501 Transfers

88 Total Hospitals Reporting
Trauma Centers: 9 facilities   47.03% of data
(Non-Trauma) Hospitals: 79 facilities   52.97% of data

Facility to Facility Transfers

For Transfer Patients:		
Initial Hospital Type	**Final Hospital Type**	**Incident Counts**
Rural Hospital	**Hospital**	18
Hospital	**Hospital**	103
Trauma Center	**Trauma Center**	31
Critical Access Hospital	**Hospital**	57
Critical Access Hospital	**Trauma Center**	90
Rural Hospital	**Trauma Center**	79
Hospital	**Trauma Center**	122

Facility Transfer Type
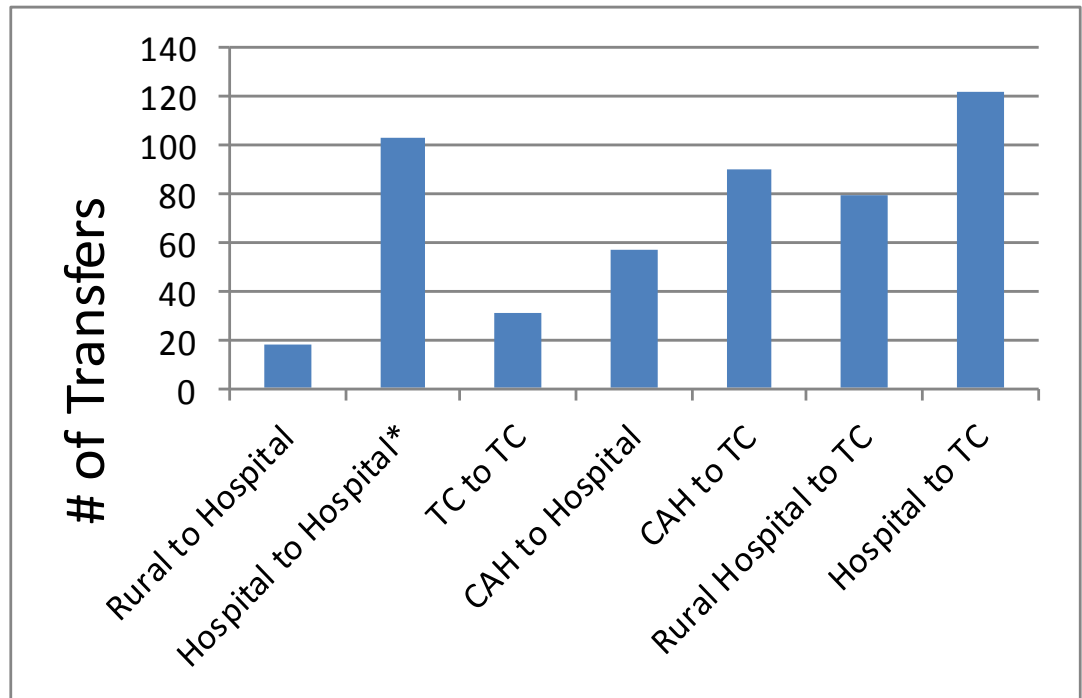
Rural = Rural Hospital; TC = ACS Verified Trauma Center; CAH = Critical Access Hospital; Hospital = does not fall into above categories

*At the time this report was created, there were four hospitals deemed "in the process" trauma centers for the purposes of the triage and transport rule. Because this report spans data from January 1, 2014 through March 31, 2014, and IU-Health Ball Memorial was the only hospital with "in the process" status during the entire quarter, we cannot separate the "in the process" trauma centers from "hospitals" because of respect for patient privacy. Patients may be able to be identified due to isolating one hospital's data.

Indiana Trauma Registry

Statewide Quarter 1 Data Report

January 1, 2014 to March 31, 2014
6,824 Incidents—501 Transfers

88 Total Hospitals Reporting
Trauma Centers: 9 facilities   47.03% of data
(Non-Trauma) Hospitals: 79 facilities   52.97% of data

For Linked Transfer Patients:

For Transfer Patients:			
	All Transfer Patients	*Critical** Transfer Patients	*Physiological Critical*** Transfer Patients
Number of Patients	501	315	300
EMS Notified to Scene	8.7 minutes	8.9 minutes	9.1 minutes
EMS Scene Arrival to Departure	16.7 minutes	16.6 minutes	16.8 minutes
EMS Scene Departure to Initial Hospital ED Arrival	21.8 minutes	21.3 minutes	21.7 minutes
Initial Hospital ED Arrival to Departure	2 hours 59 minutes	2 hours 54 minutes	2 hours 54 minutes
Initial Hospital ED Departure to Final Hospital ED Arrival	1 hour 5 minutes	1 hour 3 minutes	1 hour 5 minutes
TOTAL TIME	4 hours 51 minutes	4 hours 44 minutes	4 hours 47 minutes

*Critical patient is defined as having a GCS ≤ 12, OR Shock Index > 0.9 OR ISS >15 at the initial hospital.
**Physiological Critical Transfer patient is defined as having a Shock Index > 0.9 OR GCS ≤ 12 at the initial hospital.
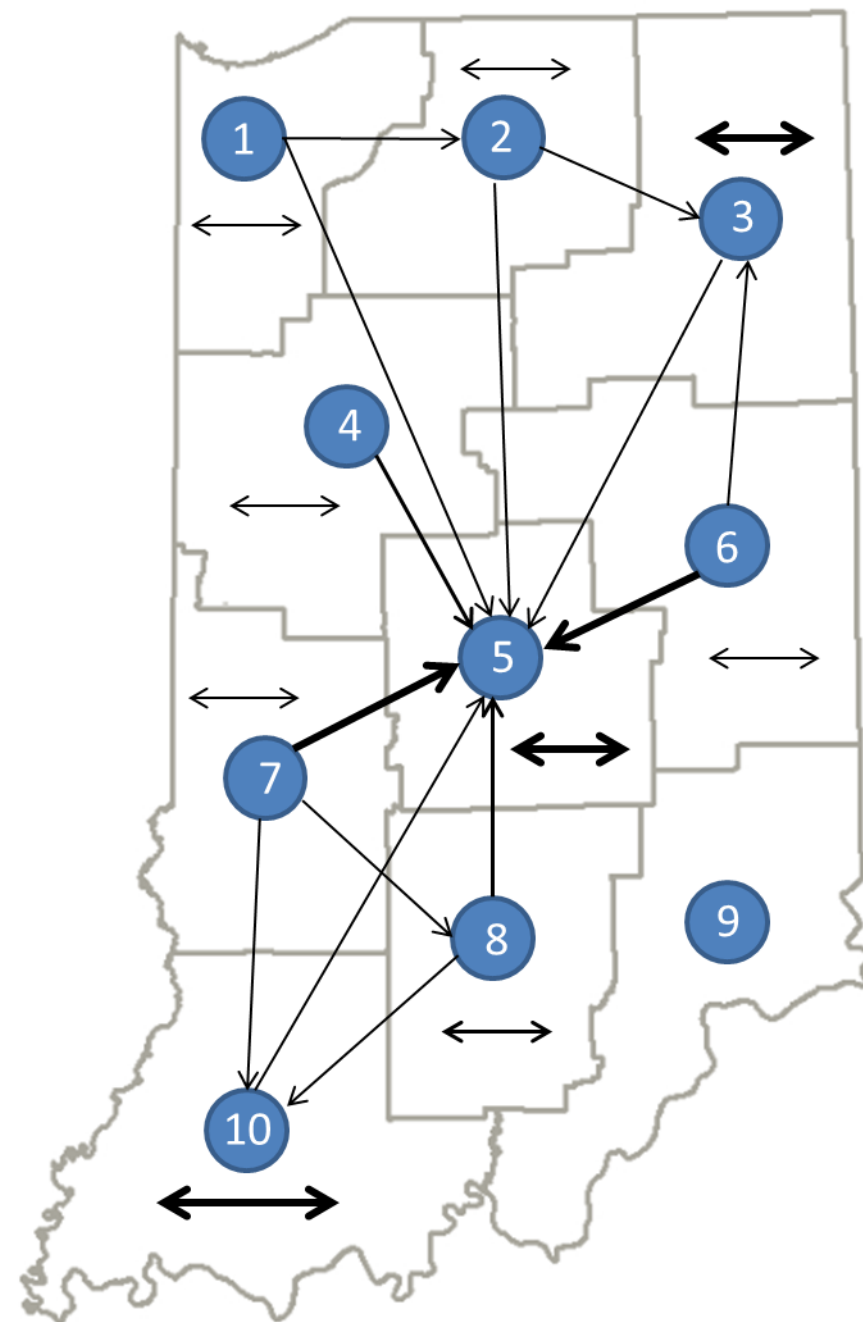
Indiana Trauma Registry

Statewide Quarter 1 Data Report

January 1, 2014 to March 31, 2014
6,824 Incidents—501 Transfers

For Transfer Patients:		
Public Health Preparedness District Initial Hospital	Public Health Preparedness District Final Hospital	Incident Counts
1	1	6
1	2	7
1	5	5
2	2	11
2	3	13
2	5	2
3	3	73
3	5	2
4	4	9
4	5	26
5	5	69
6	3	13
6	5	48
6	6	5
7	5	48
7	7	13
7	8	9
7	10	1
8	5	27
8	8	24
8	10	1
10	5	7
10	10	48

*The thickness of the line indicates the frequency of transfers out of or within the public health preparedness district

The circles represent transfers from a specific Public Health Preparedness District, not of a specific hospital or county.

Indiana Trauma Registry

Statewide Quarter 1 Data Report
January 1, 2014 to March 31, 2014
6,824 Incidents—501 Transfers

88 Total Hospitals Reporting
Trauma Centers: 9 facilities   47.03% of data
(Non-Trauma) Hospitals: 79 facilities   52.97% of data

For Linked Transfer Patients:

For Transfer Patients:

	All Transfer Patients	*Critical** Transfer Patients	*Physiological Critical*** Transfer Patients
Number of Patients	501	315	300
Total Time	4 hours 51 minutes	4 hours 44 minutes	4 hours 47 minutes
Total Mileage	54.8	55.8	55.8
Injury Scene to Initial Hospital Mileage*	8.7	8.3	8.3
Initial Facility to Final Facility Mileage	46.1	47.5	47.6

Estimated Average Distance (miles) by Region (region of final hospital):

Region	Injury Scene to Initial Facility Mileage*	Initial Facility to Final Facility Mileage	Total Mileage	Drive Count	Air Count
Indiana Average	8.7	46.1	54.8	400	81
North Region	6.6	35.6	42.2	97	9
Central Region	9.2	53.5	62.8	225	57
South Region	9.4	35.5	44.9	78	15

*Critical patient is defined as having a GCS ≤ 12, OR Shock Index > 0.9 OR ISS >15 at the initial hospital.
**Physiological Critical Transfer patient is defined as having a Shock Index > 0.9 OR GCS ≤ 12 at the initial hospital.
***Injury Scene to Initial Facility Mileage location estimated by zip code centroid
Statistics for Estimated Average Distance by Region calculated by Public Health Geographics, Epidemiology Resource Center, ISDH

Indiana Trauma Registry
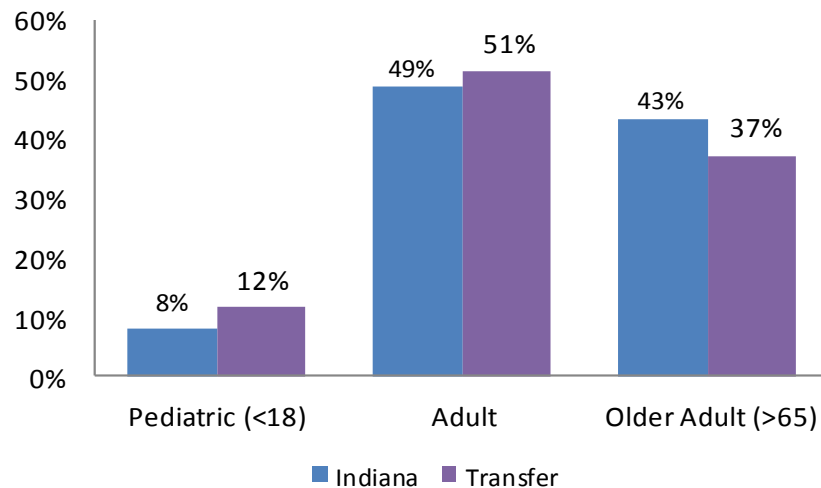
Statewide Quarter 1 Data Report
January 1, 2014 to March 31, 2014
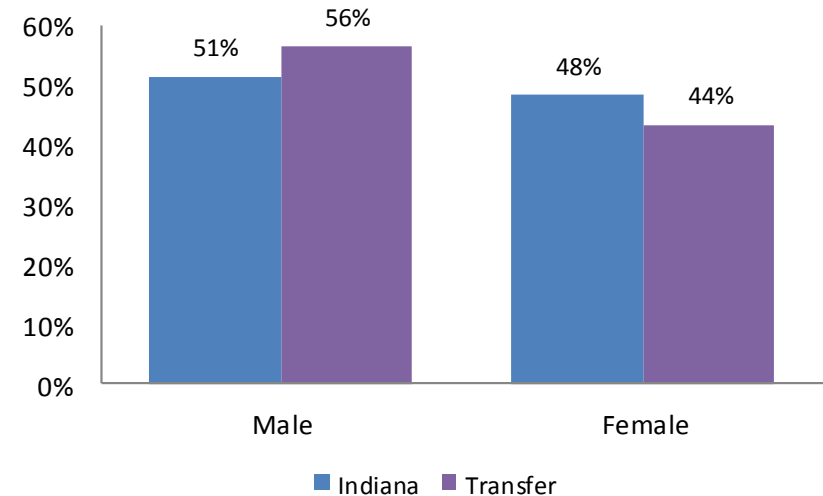**6,824 Incidents—501 Transfers**

Patient Age Groupings

Pediatric (<18): Indiana 8%, Transfer 12%
Adult: Indiana 49%, Transfer 51%
Older Adult (>65): Indiana 43%, Transfer 37%

■ Indiana ■ Transfer

Patient Gender

Male: Indiana 51%, Transfer 56%
Female: Indiana 48%, Transfer 44%

■ Indiana ■ Transfer

Injury Severity Score (ISS)

1-8: Initial Hospital 51%, Final Hospital 42%
9-14: Initial Hospital 37%, Final Hospital 42%
15-24: Initial Hospital 6%, Final Hospital 9%
25-44: Initial Hospital 3%, Final Hospital 7%
45-74: Initial Hospital 0%, Final Hospital 0%
75: Initial Hospital 0%, Final Hospital 0%
No ISS: Initial Hospital 4%, Final Hospital 0%

■ Initial Hospital ■ Final Hospital
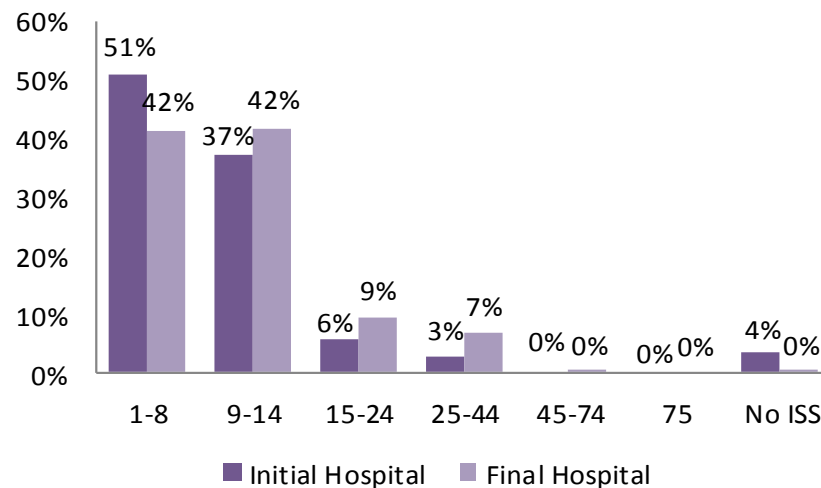
Trauma Type- Final Hospital
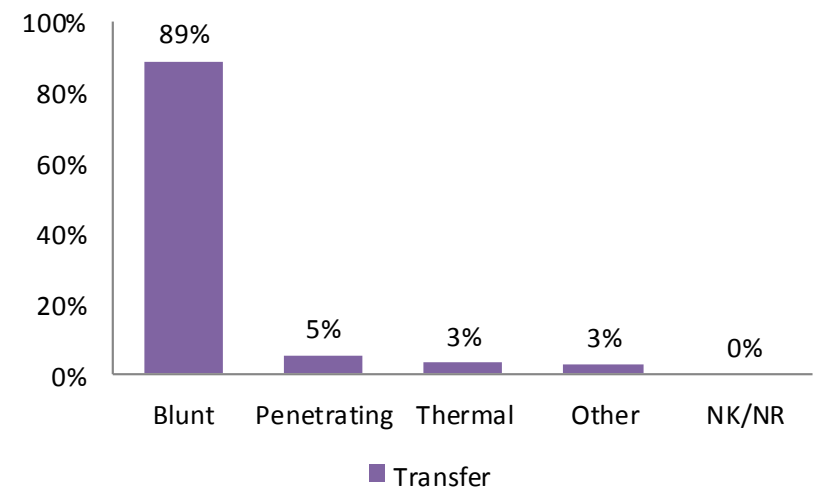
Blunt: 89%
Penetrating: 5%
Thermal: 3%
Other: 3%
NK/NR: 0%

■ Transfer

Indiana Trauma Registry

Statewide Quarter 1 Data Report

January 1, 2014 to March 31, 2014

6,824 Incidents—501 Transfers

88 Total Hospitals Reporting

Trauma Centers:	9 facilities	47.03% of data
(Non-Trauma) Hospitals:	79 facilities	52.97% of data

Transport Mode– Final Hospital

Legend: ■ Indiana ■ Transfer

ED Disposition by Percentage- Final Hospital

Legend: ■ Transfer
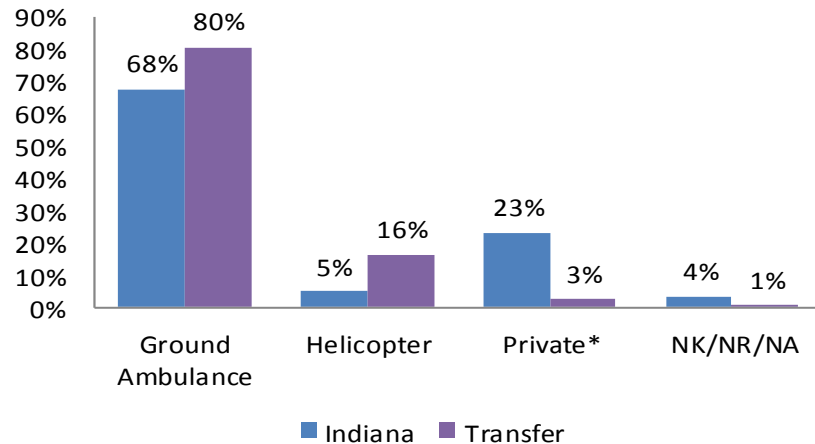
<1% Transport Mode: Police, Other   * Indicates Private/ Public Vehicle, Walk-in

ED Length of Stay (hours)- Final Hospital

Legend: ■ Transfer

ICU Length of Stay (days)- Final Hospital
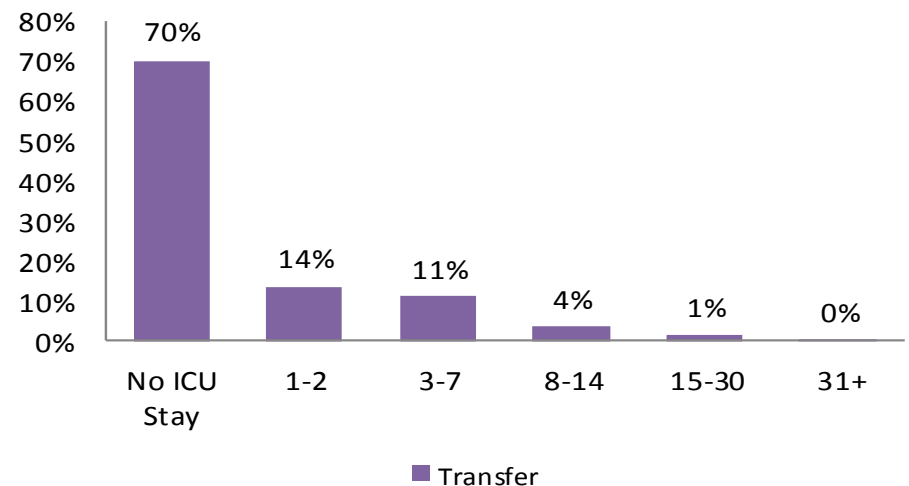
Legend: ■ Transfer

Indiana Trauma Registry

Statewide Quarter 1 Data Report
January 1, 2014 to March 31, 2014
6,824 Incidents—501 Transfers

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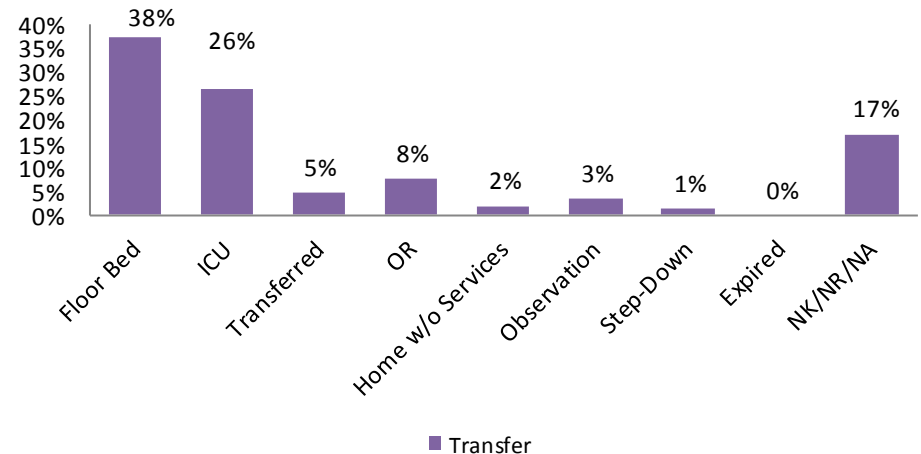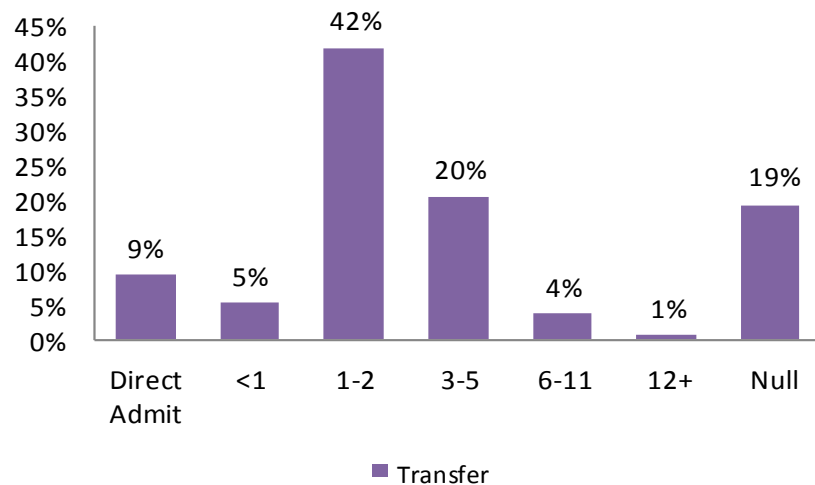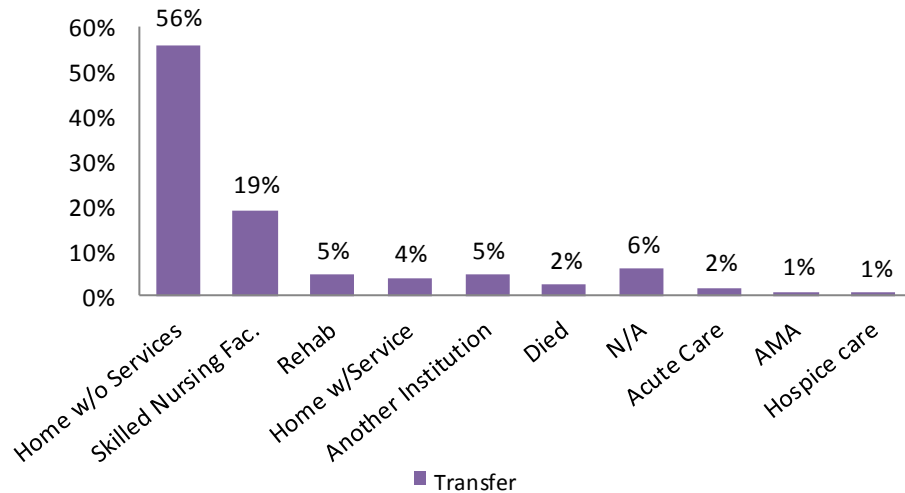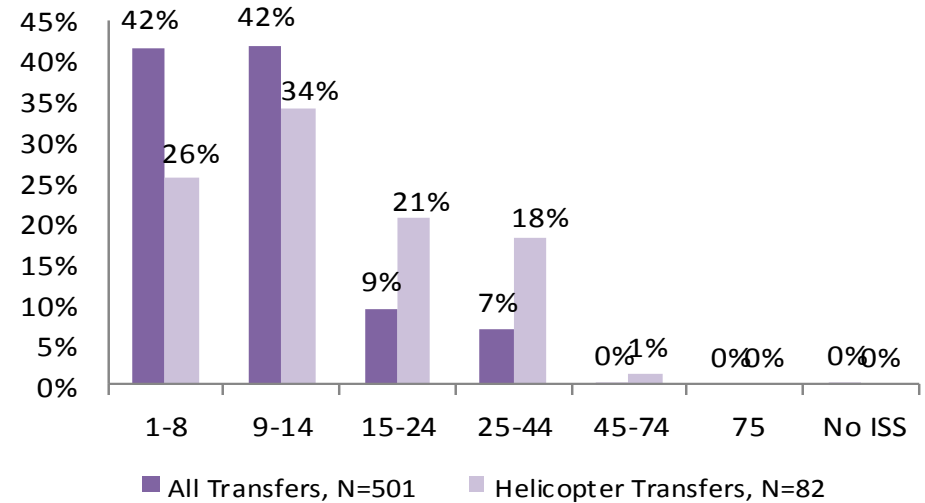(Non-Trauma) Hospitals: 79 facilities   52.97% of data

Discharge Disposition– Final Hospital

Legend: ■ Transfer

Home w/o Services 56%, Skilled Nursing Fac. 19%, Rehab 5%, Home w/Service 4%, Another Institution 5%, Died 2%, N/A 6%, Acute Care 2%, AMA 1%, Hospice care 1%

Helicopter Transfers by ISS– Final Hospital

Legend: ■ All Transfers, N=501   □ Helicopter Transfers, N=82

1-8: 42% / 26%; 9-14: 42% / 34%; 15-24: 9% / 21%; 25-44: 7% / 18%; 45-74: 0% / 1%; 75: 0% / 0%; No ISS: 0% / 0%

Transfer Delay Indicated- Initial Hospital

Legend: ■ Transfer

Yes 9%, No 57%, NK/NR 34%

Initial Facility Transfer Delay Reason- Initial Hospital

Legend: ■ Transfer

EMS Issue 6, Other 1, Receiving Hospital Issue 2, Weather or Natural Factors 2, NK/NR 490

Indiana Trauma Registry

Statewide Quarter 1 Data Report
January 1, 2014 to March 31, 2014
6,824 Incidents

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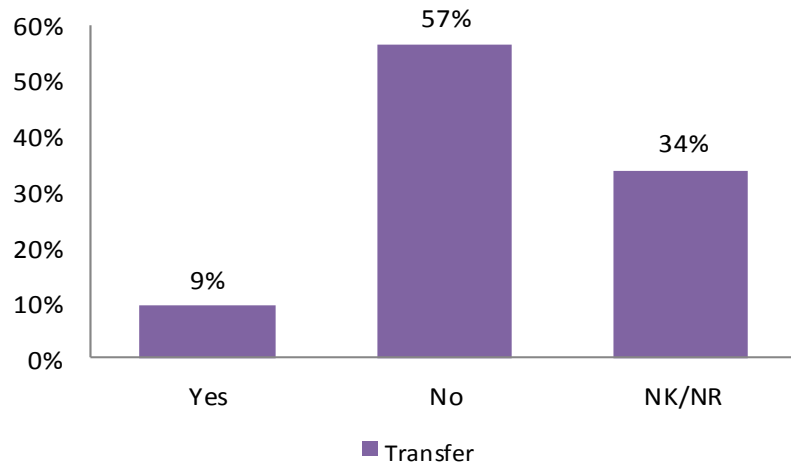
ED Length of Stay

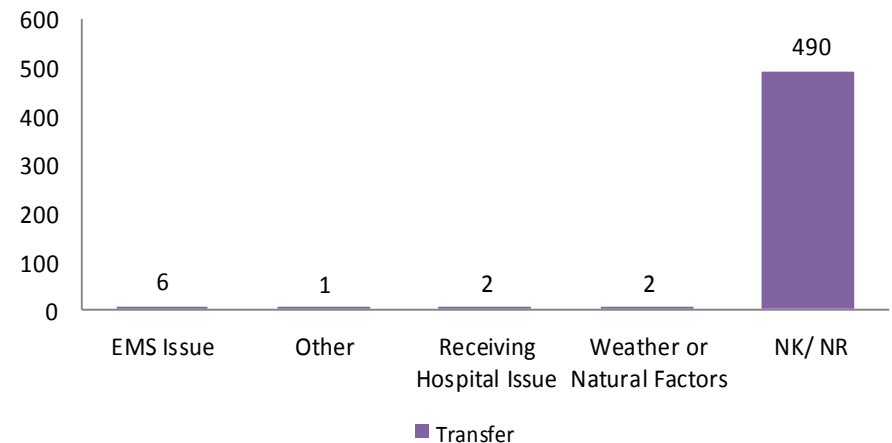| ED Length of Stay (minutes)			
	Indiana Average	Trauma Center	Non-Trauma Center
N=	6181	3037	3144
Average	234.0	228.5	239.3
Std. Deviation	194.5	187.2	201.2
Minimum	0.0	0.0	0.0
Quartile 1	136.0	125.0	146.0
Median	197	192.0	202.0
Quartile 3	275.0	274.0	275.0
Maximum	2335.0	2335.0	1930.0

ED Length of Stay by ISS

ED Length of Stay (minutes)						
ISS Category	Indiana Average	Indiana Average	Trauma Center	Trauma Center	Non-Trauma Center	Non-Trauma Center
	Counts	Minutes	Counts	Minutes	Counts	Minutes
1-8	2873	247	1345	254.3	1528	240.5
9-14	2128	232.3	989	219.3	1139	243.6
15-24	387	217.6	297	207.8	90	249.6
25-44	271	174.7	224	173.8	47	178.8
45-74	13	131.7	13	131.7	0	
75	9	100.3	8	101.5	1	91
No ISS	117	219.7	6	157.0	111	223.1

ED Disposition

ED Disposition (count)			
	Indiana	Trauma Center	Non-Trauma Center
Floor Bed	3116	1530	1586
ICU	909	772	137
Transferred	1089	126	963
OR	468	314	154
Home w/o Services	209	79	130
Observation	319	143	176
Step-Down	149	58	91
Expired	48	25	23
AMA	6	1	2
Home W/ Services	3	2	2
Other	11	1	10
NK/NR/NA	499	158	341

*A bar graph of ED Disposition is found on page 4.
*A bar graph of ED Length of Stay is found on page 4.
*A Box and Whisker plot of ED LOS is found on page 5.
*A Box and Whisker plot of ED Length of Stay by ISS is found on page 14.

Indiana Trauma Registry

Statewide Quarter 1 Data Report
January 1, 2014 to March 31, 2014
6,824 Incidents

88 Total Hospitals Reporting
Trauma Centers: 9 facilities   47.03% of data
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ED Disposition (count) by ISS Category

	Floor Bed	ICU	Transferred	OR	Observation	NK/NR/NA	Step-Down	Home w/o Services	Expired	Other	AMA	Home w/ Services	Total
1-8	1554	245	597	226	235	184	83	189	11	8	3	4	3339
9-14	1354	294	358	137	74	157	54	9	8	0	0	0	2445
15-24	92	197	49	41	7	9	6	1	4	0	0	0	406
25-44	19	156	28	55	3	9	4	0	16	0	0	0	290
45-74	0	7	0	5	0	0	0	0	1	0	0	0	13
75	0	6	0	0	0	0	0	0	3	0	0	0	9
NO ISS	97	4	57	4	0	140	2	10	5	3	0	0	322
Total	3116	909	1089	468	319	499	149	209	48	11	3	4	6824

*Bar graph of ED Disposition by ISS is found on page 14.

Indiana State Department of Health
Indiana Trauma Registry

Hospitals Reporting Trauma Data
Quarter 1, 2014

H Trauma Centers

Deaconess Hospital
Eskenazi Health
IU Health - Methodist Hospital
Lutheran Hospital of Indiana
Memorial Hospital of South Bend
Parkview Regional Medical Center
Riley Hospital for Children at IU Health
St. Mary's Medical Center of Evansville
St. Vincent Indianapolis Hospital

## H "In the Process" Hospital*

IU Health - Arnett Hospital
IU Health - Ball Memorial Hospital
St. Elizabeth East Hospital
St. Vincent Anderson Hospital

▲ Non-Trauma Hospitals

73 Non-Trauma Hospitals

Quarter 1 2014:
January 1- March 31, 2014

* Considered a trauma center for purposes of the triage and transport rule.

Indiana State
Department of Health
Trauma and Injury Prevention
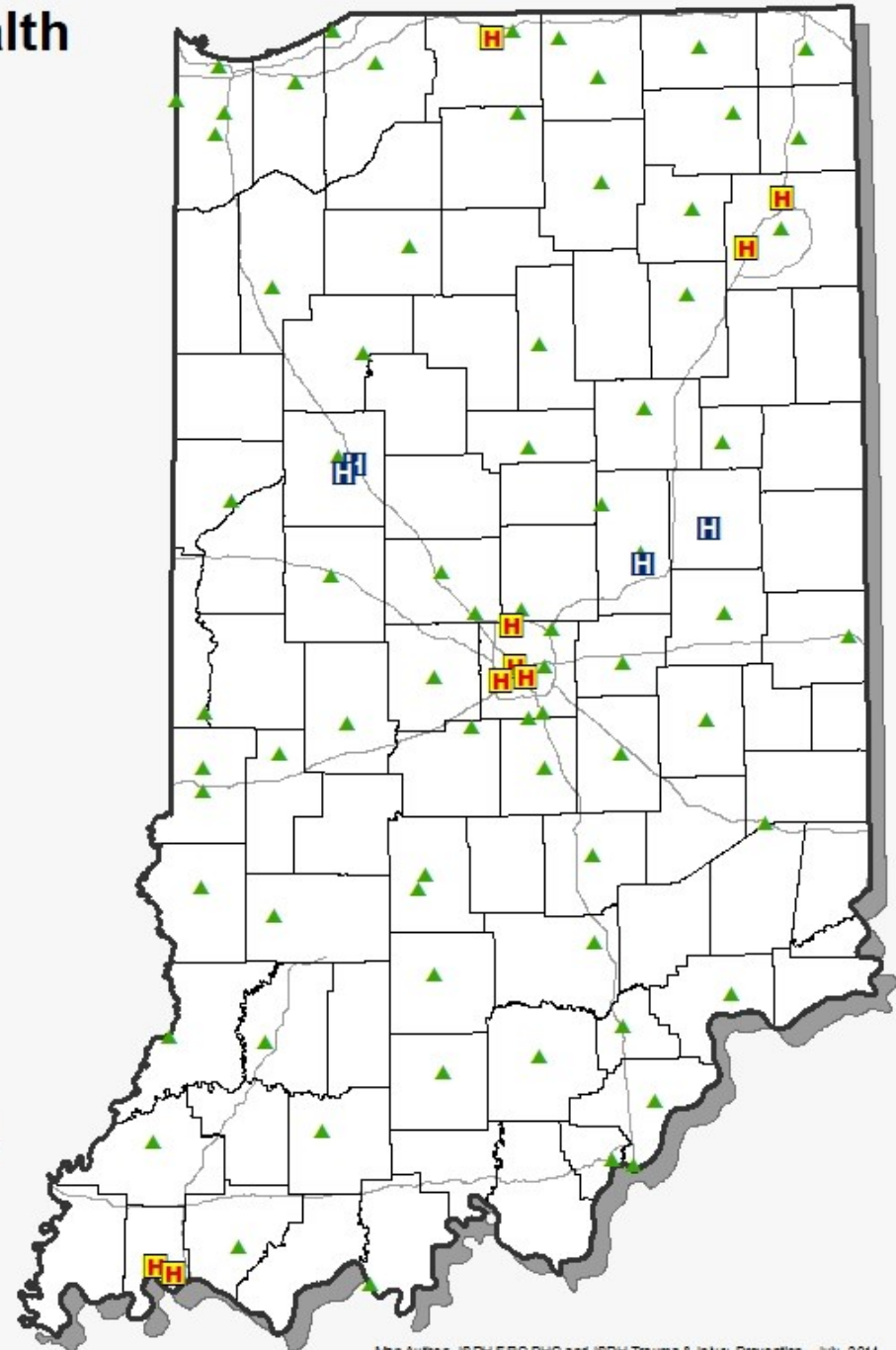
Map Author: ISDH ERC PHG and ISDH Trauma & Injury Prevention - July, 2014

Indiana Trauma Registry

Statewide Quarter 1 Data Report
January 1, 2014 to March 31, 2014
6,824 Incidents

87 Total Hospitals Reporting

Trauma Centers:	9 facilities	47.03% of data
(Non-Trauma) Hospitals:	78 facilities	52.97% of data

Requests and Changes to the Report from Trauma Care Committee members at the May, 2014 ISTCC Meeting:

General Report:

-Formulas were added on the cover page for ISS, Ps, and GCS

-ED LOS was calculated and presented for all patients and for transferred patients. The caterpillar plots for all patients may be found on pages 6-8 and the plots for transferred patients may be found on pages 9-13. The order of the hospitals on these graphs are from low to high mean ED LOS.

-We are continuing to track the number of cases that fell into the ED LOS >12 hours category, which is on page 4.

-A map of all reporting hospitals is found on page 30. Note there was only one "in the process" facility during the entirety of Quarter 1, 2014.

Transfer data:

-At the time this report was created, there were four hospitals deemed "in the process" trauma centers for the purposes of the triage and transport rule. Because this report spans data from October 1-December 31, 2013, and there were fewer than 5 hospitals with "in the process" status during the entire quarter, we cannot separate the "in the process" trauma center into its own column due to patient privacy. We were also unable to tease out "in the process" centers from hospitals on page 21 because of the same issue. Patients may be able to be identified due to isolation of one hospital's data. We recognized the suggestion of the Trauma Care Committee and will reconsider the idea for the next report.

Example Bar and Whisker Plot:

-Bar and whisker plots were requested at the November, 2013 ISTCC meeting in order to show more than just an average ED LOS and ED LOS by ISS. The bar and whisker plots represent the four quartiles of data, as illustrated on the example graph to the right. The blue boxes each contain 25% of the values and the error bars each represent where 25% of the values fell. The median is represented in the middle of the two blue boxes with the white line. The red dot in the center indicates the average for that category. The cap on the error bars indicates the minimum and maximum of each category and all the values fall within the two caps.

-For the ED LOS bar and whisker plots to the right, the average is represented by the white dot and the color boxes reflect the hospital type. The ED LOS by ISS plots on the next page follow the same layout and the red dots indicate the average for each of the ISS categories.

EXAMPLE CHART